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TABLE OF CONTENTS

The Nature of the Rheumatic Child DOUGLAS HUBBLE, M.D. 121
Weil's Disease in an Army Camp S. VARADI, M.D. 126
Inactivation of Phosphorus on the Skin M. W. GOLDBLATT, M.D., and S. H. OAKESHOTT, B.SC. 128
CO_2 Absorption with Field-pattern Boyle's Apparatus J. MONTGOMERIE, M.B. 129
A Circle-type Carbon Dioxide Absorber W. W. MUSHIN, M.B. 130
Aspects of War Medicine in the R.A.F. D. STAFFORD-CLARK, M.B. 139
Investigation into Standard of Milk Supplied to Children A. G. WATKINS, M.D. 140

MEDICAL MEMORANDA
Spina Bifida in Binovular Twins. A. FRY, M.R.C.S., D.M.R. 131
The Rh Factor in Haemolytic Anaemia of the Newborn. T. W. LLOYD, D.M. 132

GENERAL ARTICLES AND NEWS
Surgeons and Surgery in Leningrad. Prof. N. BLINOFF 134
VENEREAL DISEASES 134
THE SERVICES 148
UNIVERSITIES AND COLLEGES 147
MEDICAL NOTES IN PARLIAMENT 148
MEDICAL NEWS 150

REVIEWS
Immunology 133
Psychological Effects of War 133
Year Book of Eye, Ear, Nose, and Throat, 1942 133

OBITUARY
T. W. Edmondston Ross, M.D., F.R.C.S.Ed. 147
J. Morgan Rees, M.R.C.S. 148

Epidemiology Section 149

LEADING ARTICLES
A Member Resigns 135
Houses to Live in 136

ANNOTATIONS
Statistics of Venereal Disease.....137
Operation for Mumps Orchitis.....138
Peripheral Nerve Injuries.....138
Dr. Boyd's Gift to Manchester.....138

REPORTS OF SOCIETIES
ROYAL SOCIETY OF MEDICINE: Radiological Diagnosis of Disproportion 142
ROYAL ACADEMY OF MEDICINE IN IRELAND: Functions of the Pyloric Canal.....142

LETTERS AND ANSWERS
Income Tax—Scabies—Treatment of Migraine—Sacro-iliac Strain 150

SUPPLEMENT
CONDENSED MILK FOR INFANTS 15
CORRESPONDENCE 15
H.M. FORCES APPOINTMENTS 16
ASSOCIATION INTELLIGENCE 16
POSTGRADUATE NEWS 16

CORRESPONDENCE
"Calorie Control" Diabetic Diet. R. D. LAWRENCE, M.D.; A. C. CROOKE, M.D. 143
Dietetics of Pregnancy. R. B. FISHER 144
Pituitary Extract for Congenital Pyloric Stenosis. ELIZABETH CURPHEY, M.R.C.S. 145
A Case of Balantidiosis. P. A. M. ROBERTSON, L.R.C.S.Ed. 145
Mitral Systolic Murmurs. WALTER BROADBENT, M.D. 145
Skin Diseases in War. R. T. BRAIN, M.D. 145
The Specialist in Medicine. H. M. TRAQUAIR, F.R.C.S.Ed. 145
Electric Convulsion Therapy and Brain Damage. HORACE HILL, M.B. 146
Testing for Night Vision. Sir JOHN PARSONS, F.R.S., F.R.C.S. 146
Staffing Mass Miniature Radiography Units. PHILIP ELLMAN, M.D. 146
X-ray Department at Health Centre. J. V. SPARKS, M.R.C.S. 146
Search for Health. S. J. G. SPENCER 146
Pasteurization of Milk. A. H. MACDONALD, M.D. 147

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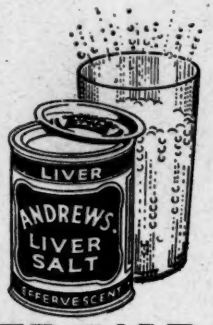

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY JANUARY 30 1943

THE NATURE OF THE RHEUMATIC CHILD

BY

DOUGLAS HUBBLE, M.D.Lond.

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The rheumatic state in childhood has remained a profound and complex problem despite the observation and research of the last 60 years. There is little in the clinical story of the disorder as related in the textbooks of to-day which would break new ground for Cheadle, Goodhart, and Still. The problems which they stated—the nature of chorea and its relation to rheumatism, the aetiology of the rheumatic state and its relation to diathesis—still refuse solution. These clinicians would certainly remark that in the last 30 years interest and emphasis have shifted from the nature and reactions of the host to the characters of the invader, or, in Osler's parallel, from the soil to the seed. These bacteriological researches have produced much knowledge but no finality. A recent summary of them states:

"According to one view rheumatic fever is caused by an unknown virus, an infection which is readily activated by haemolytic streptococci, but which may at times be activated under other circumstances. According to the second view the streptococci are themselves the cause of the rheumatic fever, the rheumatic symptoms being regarded as a peculiar type of host response conditioned by sensitization. It is not yet possible to decide between these views. It is a question whether the antibody response to the streptococcus infection which causes the rheumatic flare-up shows a significant difference from that encountered in individuals who show no such flare-up." (Holt and McIntosh, 1940.)

The comparative failure of these researches demonstrates the need for returning to the preoccupations of 50 years ago, to the study of the soil rather than of the seed, for it is here that the key to this "peculiar type of host response" must eventually be found.

The Mind–Body Relationship

There are other reasons for returning to the study of the disposition of the rheumatic child. There is no disorder in which the emotional and the physical components seem more inextricably mingled. There is no disorder in which the attempt to separate the psyche from the soma, the functional from the organic, is more baffling. It is a long step from the undischarged emotion of the choreic child to the adult dying from congestive heart failure, and of many of the steps in this unhappy pilgrimage we are ignorant. We shall not, however, advance our knowledge by refusing to recognize that this emotional tension exists in the child or by denying the possibility that such nervous instability can both initiate and condition physical processes. Psychiatry cannot discover the link between the emotional tension and the physical disorder; it can do no more than explore fully the emotional background. The other approach to this mind–body relationship is by way of neurophysiology, and it does not seem likely to be more fruitful than the psychiatric approach. Sherrington (1940) has discussed this problem in his Gifford Lectures, "Man on his Nature," and he writes:

"There is, for instance, the condition 'anxiety.' None is, I suppose, more far-reaching as a warper of the mind. But where does neurophysiology contribute anything to the knowledge of the norm from which anxiety causes departure, and what has cerebral physiology to offer on the whole subject of 'anxiety'? The psychiatrist has perforce to go on his way seeking things more germane to what he needs. . . . The mental is not examinable as a form of energy. That in brief is the gap which parts psychiatry and physiology."

The introduction of the electro-encephalogram gave hope to some that the elucidation of this profound problem was imminent, and of this record it has been written (Gordon, 1939):

"It is interesting to note that these changes in Berger's rhythm may be brought about not only by traumatic stimuli or by stimuli such as the shining of a bright light into the eye affecting the occipital cortex, but also by purely intellectual processes such as the effort to solve a mathematical problem."

It is obvious that not much can be hoped in this direction from a machine which makes little distinction between a crack on the head and the intellectual processes of an Einstein. It gives us *quantity* when we ask for *quality*, or, as Sherrington has brilliantly expressed it:

"It has brought us to the brain as a telephone exchange. All the exchange consists of is switches. What we really wanted of the brain was, it would seem, the subscribers using the exchange—the subscribers with their thoughts, their desires, their anticipations, their motives, their anxieties, their rejoicings."

To write and talk, then, of "psychosomatic disorders" as is so often done to-day is to assume a bridge whose existence we but dimly discern and of whose nature we are ignorant. Such illnesses are better named disorders of personality, of the soil, or of diathesis. Yet we must not refuse validity, for these same reasons, to the psychological assessment of the personality of sick people before, during, and after their development of the physical signs of disease; for such studies, rightly interpreted, insist on a fundamental unity of mind and body—an integrity which can only be denied by materialists or mystics who have lost their way. Too often, however, in adults such studies have no therapeutic value. The process is irreversible. The arthritic joints, the ulcerated duodenum or colon, dominate the patient's psyche and the physician's efforts; but in children the lesion is, for the most part, subordinate to the growth of personality. The tail does not as yet wag the dog. The conditioning process of continuous adjustment to the environment goes on inexorably; but where the conditioning is too difficult or too rapid and where the adjustment is faulty, the parents, the physician, and the teacher can intervene to anticipate disaster and prevent it. The rheumatic state in childhood is to some extent a preventable disaster (since it occurs unusually in the well-to-do classes), and therefore the first questions to ask when we are confronted by a child with subacute rheumatism, with chorea, and with acute arthritis are: "Why did this child become rheumatic, and how can the aetiological factors be controlled?" To answer these questions is the further purpose of this paper.

What is a "Functional" Disorder?

It is necessary first to consider one other problem in nomenclature—the definition of a "functional" disorder. However this word is defined, it is still interpreted as denoting

something of which the sufferer should be ashamed and something for which the physician may justly feel impatience or contempt. So that if I define chorea as a functional disorder, as I do, the immediate reaction of many people is: "Nonsense! How can the poor child help itself?" It is necessary at present to include under the description of "functional" disorders that must ultimately prove to be of widely different aetiology: the psychoneuroses; cerebral disorders, such as epilepsy, migraine, and chorea; the allergic disorders; the disorders of plain muscle—bronchial, oesophageal, gastric, colonic, rectal, ureteric, arterial; the disorders of cardiac rhythm, such as paroxysmal tachycardia; and many others as yet unclassifiable.

All this is so unsatisfactory that attempts are constantly made to provide a more exact nomenclature. Of recent years it has become usual to talk of physiogenic and psychogenic components of such disorders. This has been of little value because we are often unable to distinguish, as in the effects of cerebral trauma, what is physiogenic from what is psychogenic. Moreover, everyone agrees that physical disease may produce psychological disorder, and most of us accept as a fact that psychological states both indirectly and directly induce physical disease. A man is depressed, anxious, and fatigued, and develops a carbuncle, influenza, pneumonia, or herpes zoster; most of us are prepared to relate his psychological state to his ensuing physical disorder, just as we are prepared to believe that certain kinds of emotional stress may form the background for physical diseases, such as duodenal ulcer, ulcerative colitis, exophthalmic goitre, and rheumatoid arthritis. Changes in nomenclature cannot usefully run ahead of ascertained fact; for thus judgment is clouded and counsel confused. We must rest content with the adjectives "functional" and "organic" until the facts allow us to make further distinctions between them. If, then, I define chorea as a "functional" disease I mean that, although it has organic associations, it has a psychogenic component and no known structural pathology.

*The Clinical Significance of "Growing Pains"

"Growing pains" is the traditional name given to the pains in the limbs which occur commonly in children during school age. If the name was apposite it must have been generally inferred that such pains were both common and insignificant, that many children suffered from them and were afterwards none the worse. Such an estimate of their importance was strongly deplored by all physicians in early decades of this century. G. F. Still (1912) wrote:

> "The practical importance of recognizing the significance of these slight pains in the limbs in children—'growing pains' as they are too often called—can hardly be overrated. They may be the earliest indication of a rheumatic taint, and as such should always serve as a danger signal. To disregard them is to favour the onset of more severe symptoms, and it seems likely that active treatment in this early stage may not only cause the disappearance of pains but may also prevent those affections of the heart that are so distressing a feature in the rheumatism of childhood; certainly these vague pains call for the utmost care in prophylaxis, and a child who has once shown such symptoms requires continual care as to clothing, climate, and the prevention of exposure to cold and damp."

Robert Hutchison (1940) spoke more epigrammatically of "growing pains" in words which have echoed in the ears of several generations of medical students: "That, gentlemen, is a phrase which has crippled a great many hearts."

This was the general view, taught, accepted, and practised until after the last war, when the L.C.C. started its clinics for rheumatic children at the children's hospitals in London. Great numbers of children with pains in the limbs were referred to these clinics as suffering from incipient or actual rheumatic disease. It was soon obvious to the physicians in charge that they were not suffering from the rheumatic state; nor did they, in any significant number, develop it while under observation (Winnicott, 1931; Sheldon, 1936; Hawksley, 1939). Attention, both here and in America, during the last 10 years has therefore turned to the nature of these pains, their frequency, and their differentiation from the rheumatic state. They are variously regarded by different authorities as being due to 'normal physiologic growth" (Shapiro, 1939), a view widely held in the nineteenth century; to fatigue and damp (Sheldon, 1936); to fibrositis (Seham and Hilbert, 1933); to postural deformities (several authors); and to emotional disorders (Winnicott, 1931, 1938). No one has yet attributed them to a deficiency of the vitamin B complex. Two of these views may be considered before discussing the nature of these pains. That the pains may be due to normal physiological growth is an opinion which will commend itself to few. The only physiological process to be accompanied by pain is childbirth, and to regard pain as a proper concomitant of growth is to live in a crazy world where the normal and abnormal coincide.

Nor is it to be accepted that fatigue is the prime cause of these pains. It is true that tiredness is frequently complained of by these children, but this fatigue is itself a symptom of ill-health. There is no fatigue in a healthy child that is not recoverable from by a night's rest. Tired children are ill children, and their illness may be emotional or physical in origin.

The incidence of these growing pains in normal children is extraordinarily high. Some observers have suggested that it is as high as 20% and even 40%; but a careful and extensive inquiry made by Kaiser (1927) in New York showed that out of 48,000 normal school children 7.1% complained of pains in the limbs. The incidence of cardiac rheumatism among 301,392 L.C.C. children examined in 1936 was 0.8%; so we may conclude that the incidence of growing pains among children is nine times greater than the incidence of rheumatic heart disease.

If the problem of the relation of growing pains to rheumatism is considered from another angle an immediate difficulty is disclosed, for there is no doubt that children who have developed rheumatic heart disease often give a history of pains in the limbs. Kaiser (1934) in his account of an investigation of 1,200 children with rheumatism said that 18% complained of muscle pains; and Sheldon reported that nearly 20% of 266 children with rheumatic heart disease gave a history of aches and pains in the extremities.

This, then, is the justification that the older physicians would have advanced for their warning as to the profound danger of growing pains. Their remedy was to treat all children with growing pains as potential rheumatics if their hearts were normal and as actual rheumatics if their hearts were under suspicion. This meant, as the quotation above from Still demonstrates, a life of partial invalidism, and it is not surprising, therefore, that the incidence of cardiac neurosis in the adult population is greater than the incidence of rheumatic heart disease. Paul Wood (1941) has written graphically of the childhood of these cardiac neurotics:

> "On the approach of the evil day when they will have to attend school they are filled with apprehension; if the dire event is not delayed by some happy illness (rheumatic fever followed by an open-air school is especially welcomed) they spend the next few years as trembling spectators of the rough-and-tumble of the miniature world about them. They evade as much as possible with the help of friendly coughs and colds; kindly doctors and soft mothers are at hand to protect them from the hazards of football, swimming, and the gymnasium."

As there is nothing in the disorders of school children that has more importance than this attitude of doctors and parents, let me recount the story of a pilgrim who narrowly escaped from this slough of despond:

Case 1.—This patient was 17 years old when I first saw him. His condition had been diagnosed as subacute rheumatism at the age of 12 by a well-known paediatrician on account of tachycardia and pains in the limbs. After this he became completely invalid. He was not allowed to go to school, but had a tutor at home. He was forbidden all games and swimming. He was kept in bed for a fortnight whenever he caught a cold, which he frequently did. His parents surrounded him with every circumstance of anxiety—they were convinced that his heart was "weak." Fortunately, it was not so difficult to convince the boy that his heart was normal. He started at 17 to swim and play tennis, and without his parents' knowledge he joined the Territorials just before the war. The start of the war found him in the ranks, and the violent change in his conditions of life was almost too much for him. He fainted several times on parade. Fortunately, the boy had spirit and the makings of a good physique, but his parents during the next year tried every manœuvre to get him out of the Army.

* The part of this paper concerned with growing pains was read to the Derby Medical Society on August 11, 1942.

His father's heart bled for him metaphorically, but his duodenal ulcer bled literally. Fortunately again, my opinion of his heart was firmly supported by Dr. Hugh Barber and Dr. Geoffrey Bourne. The boy remained in the Army, and some time ago successfully completed his Commando training.

The moral of this story is not that the original diagnosis was incorrect. It may possibly have been right. The moral is that such treatment is hopelessly bad even for a child with rheumatic heart disease.

Pitfalls in Diagnosis

Can this diagnosis between the child with active rheumatism and the child with growing pains be made with reasonable certainty? No doubt it can, but the following characteristic examples will illustrate the pitfalls in diagnosis and the errors in treatment.

Case 2.—A boy aged 10 complained of pains in his legs. His parents had kept him in bed as he was running a temperature between 99° and 101°. There was no evidence of infection, his heart was healthy, and his joints showed no inflammation. He had a mild secondary anaemia. He said that his pains were in his calf and thigh muscles. He slept badly, was difficult to control, cried frequently, and attacked his young sister without good reason. We kept him in bed some weeks without improvement, and then at his parents' instance took him to see a well-known paediatrician. He spent ten minutes looking at the boy, declared him healthy and slapped him on the back, told the parents to send him away to boarding school, and ignored me completely. The boy returned to health and remained well.

I learnt from this salutary experience that emotional disorder in children can be established as a positive diagnosis and not a diagnosis made simply by exclusion of physical signs. The only diagnostic sign in this boy was his emotional instability. The second lesson was that emotional disorder can cause signs and symptoms that are often thought only to be physically determined—pyrexia, tachycardia, secondary anaemia, and pains.

Case 3.—A boy aged 13 was referred from school clinic on account of a pain in his left elbow which had been present for a year. He was a healthy and alert boy of good physique with a sensible and cheerful mother. His pain frequently came on at school, and it was so severe that he often wept and had to be sent home. Equally, it might come on at home, as "last night when he was writing a letter to his father." He was very much attached to his father, who joined the Army 14 months ago. Pain frequently waked him at night and he slept badly. Six months ago he was seen by an orthopaedic surgeon, who found no disease but referred him for physiotherapy. There was no improvement after four months' treatment. No sign of ill-health was elicited on examination, and he was treated by *reassurance* that his pain betokened no disease; *explanation* that the pain was due to depression at his father's absence; *insistence* that he should carry on with what he was doing at home or at school, however great the pain; *sedative* (phenobarbitone gr. 1/2 night and morning) to ensure sleep and a quiet nervous system. These simple measures brought about relief from pain in a fortnight, and the boy has remained well.

This boy illustrated one point that is commonly overlooked: the necessity for removing the presenting symptom—i.e., pain—in these children. Quite often it seems that the emotional disorder which originally produced the symptom has disappeared and the child's entire preoccupation is with the pain. Remove the pain or give the child sleep and all is well.

Case 4.—A girl aged 8 was referred from the school medical department with pains in the legs and ? early chorea. The child was evacuated from Birmingham and now billeted with a foster-mother, who brought her to hospital. Her movements were continuous as the woman told the story of her fidgetiness, irritability, and sleeplessness. The movements were not characteristic of chorea. Her temperature was 99.5°, her pulse rate 120 a minute. The apex beat was in the nipple line, but there was a short systolic murmur at the apex. She had a kyphotic stance, and her foster-mother, facing the child while I looked at her back, went on with her garrulous repetition of the patient's defects. The child's spine suddenly twitched into a well-marked scoliosis and then went back as suddenly to the midline again. She was admitted for a few days for observation away from her foster-mother. Her symptoms settled quickly; no further organic signs were discerned; her sedimentation rate and her sleeping pulse rate were normal. The billeting officer found another home for her, and she remained well after discharge.

These last two cases raise the question of orthopaedic treatment. It is wrong, as in Case 1, to expect the orthopaedic surgeon to diagnose emotional disorder. One must not hope to "gather figs from thistles," but the orthopaedist is not without sin in treating by physiotherapy a pain which showed no orthopaedic associations. The last child, who was beginning postural deformities, might have needed orthopaedic treatment provided the emotional difficulty was coincidently treated. The emotional origin of some postural deformities is increasingly recognized by orthopaedic surgeons. Bankart has written: "To find a scoliosis look at the child's back; to find its cause look at its mother's face." Hawksley (1939) found that "a frequent cause of growing pains is a postural or orthopaedic defect such as flat-foot, knock-knee, scoliosis, or bad stance; treatment of the cause in these cases nearly always gave relief."

I agree that it is fairly common to find a postural deformity in these children, but I do not agree that this is commonly a source of their growing pains. I have often caused the disappearance of growing pains in these children (as in Case 4) without treating their postural deformity. I agree again that physical exercise is good treatment for such children: the improvement of physical poise brings a coincident improvement in mental poise.

Growing Pains and the Subacute Rheumatic State

In Case 4, above, the subacute rheumatic state was very closely imitated. The pains, the temperature, the tachycardia, and the systolic murmur suggested a rheumatic carditis, and the fidgetiness and habit spasms mimicked true chorea. Such cases are not very uncommon, and it is admitted by all clinicians that an absolute diagnosis may be difficult. In this case a positive diagnosis of emotional disorder, the absence of evidence of an active carditis, and the therapeutic test of removal from environmental difficulties provided the correct solution. Yet it is such cases that the older physicians had in mind when they wrote of a "pre-rheumatic state," of "a latent rheumatic infection or toxaemia," of "subacute rheumatism," or of "latent chorea": a state which had for its presenting symptoms muscle or joint pains, fatigue, pallor, and an emotional instability.

This idea of latent infection or toxaemia makes little appeal to a generation which is inclined to discount the kindred theory of the septic focus. An infection which cannot be demonstrated either clinically or bacteriologically cannot be assumed to be present. Moreover, the notion that such cases show evidence of a pre-rheumatic state is open to two overwhelming objections—viz., (1) that all nervous children show these and similar symptoms; (2) that to treat such children as rheumatic is to make cardiac neurotics of them.

"But," the older physicians would reply, "a definite percentage of children with an active carditis associated with rheumatism give a history of what we have called subacute rheumatism." This is true, but in some of these children the symptoms are probably due to a coincident and active carditis. The number of children in whom the first and presenting symptom of the rheumatic state was growing pains alone *without* carditis was 9% in Findlay's series of 701 rheumatic children and 8% in Kaiser's series of 1,200. Shapiro (1939) suggests that it is possible by analysis of the type of pain felt by these children to make a diagnosis between subacute rheumatism and growing pains. It is obviously of the highest importance to attempt this diagnosis in the individual child, since growing pains do not lead to carditis and the pains of subacute rheumatism may do so. Shapiro concludes that growing pains come on at the end of the day or at night, wakening the child, that they are situated in the muscles of the thighs, and that the children show none of the other evidences of rheumatic activity; while the pains of subacute rheumatism are present in the morning and persist throughout the day, are made worse by walking and are situated in the joints themselves, and such children show other evidence of rheumatic activity. The most valuable sign in this differential diagnosis is the situation of the pain. If the pain is limited to joints, even in the absence of swelling, subacute rheumatism

should be suspected. All agree that in a small number of cases immediate diagnosis is impossible, and Shapiro writes:

"In a smaller group of patients who complain of painful extremities a clear-cut differentiation cannot be made. They have symptoms which suggest both the muscular pain of 'growing pains' and specific joint pain as well, together with some signs of infection. Such children need to be observed over a period of time before a definite diagnosis can be made."

More helpful in the positive diagnosis of growing pains is the presence of emotional disorder. The child is depressed or anxious, and shows this not alone by growing pains but also by behaviour disorders and disturbance of body function—sulkiness, irritability, fits of temper, sleeplessness (almost invariably present), fatigue, and lack of appetite. The therapeutic test of simple psychotherapy and sedation often confirms the diagnosis. There is now general agreement by physicians who have watched large numbers of these children with growing pains over many years that they do not, in any significant number, develop rheumatism. Sheldon (1936) examined 189 children with growing pains after a lapse of four years and found that only two had developed carditis. On the one hand, then, there is the fact that 9% of children with active carditis give a history of subacute pains which it may sometimes be difficult to distinguish from growing pains, and on the other the fact that of vast numbers of children under observation for growing pains only a negligible proportion develop active rheumatism. Can these two facts be reconciled?

I think it is wise to keep a more open mind on this question than is generally done to-day. It is generally agreed that children with growing pains who are under proper observation and treatment do not develop rheumatism. Is it certain that the same can be said of those children whose pains are neglected and in whom emotional disorder persists? I have notes of three children whom I had previously diagnosed as suffering from growing pains and who then disappeared from my sight. They reappeared in the out-patient department, after attacks of acute tonsillitis, at intervals varying from six months to two years, each of them with an active carditis. The fact that there is sometimes, as Shapiro and all other observers agree, this difficulty in deciding between the two conditions makes one wonder still whether this state of subacute rheumatism may not be an intermediate phase, in children predisposed to rheumatism, between growing pains and active rheumatism.

This matter of subacute rheumatism awaits clarification; it should be emphasized that it is an uncommon way for the child to enter into the rheumatic state. In so far as I have seen subacute rheumatism it has been easier to detect in those children evidence of nervous instability than to find unequivocal evidence of infection. In the effort to diagnose active rheumatism at the earliest opportunity there is no doubt that these cases have been given an importance out of proportion to their comparative infrequency. They have a great aetiological interest, however, for they raise the questions—Is there sometimes a half-way house to active rheumatism?; Could the process at this stage be controlled?

The Nature of Growing Pains

Four of the theories which have been advanced for the causation of growing pains—normal growth, fatigue, latent infection, and postural deformities—have been discarded already in the course of this paper. That growing pains may be due to fibrositis finds few supporters: Hawksley discovered only one or two cases among his 115. Tenderness at the site of the pain is remarkably absent in these children. Damp as a contributory factor can also be excluded in most cases. The remaining theory is Winnicott's suggestion that these pains represent an emotional disorder associated with the child's growth. "They are to be found," he writes, "wherever human beings are developing from babies into children, from children into adolescents, and from adolescents into adults." I have accepted Winnicott's theory as a basis for treatment in the many scores of such children I have seen in the last six years, and I am firmly convinced of its truth. These children's pains respond to the simplest psychotherapeutic and sedative measures, to the great improvement of their physical and nervous health. Statistics bring no conviction in this regard—it is a matter for personal approach and experience; but statistical evidence is provided by Neustatter (1937), who examined from the psychiatric standpoint a group of 40 children with growing pains, against several groups of controls. He reported that 34 out of 40 children with limb pains showed some degree of nervous disorder, as against 15 out of 40 picked children of good physique and 22 out of 40 in a group of rheumatic children. He concluded that these children with growing pains were "suffering from the effects of prolonged emotional strain."

It is common to find evidence in support of this theory of "prolonged emotional strain" in the papers of authors who attribute growing pains to other causes. Many observers have noted the fact that these children cry frequently, unlike the children with acute rheumatism. Hawksley says: "45% of the 115 patients with growing pains had at one time or another been reduced to crying with the pain. A feature noted by many parents was the tendency of growing pains to make their children sulky and irritable. Psychological maladjustment was unexpectedly frequent, resulting in unhappy school or home life."

It is concluded, then, that growing pains in children reflect a disorder of psychological adjustment and they are quickly removed by simple and appropriate treatment. Active rheumatism should never be diagnosed unless arthritis or carditis is present. The possibility that subacute rheumatism represents the growing pains of children predisposed to rheumatism cannot be denied. This consideration is only of theoretical importance in aetiology, and is of no account in the treatment of growing pains.

The Nature of Chorea

Chorea is generally defined as a manifestation of the rheumatic state whose morbid anatomy is an inflammation of some part of the cerebrum. It is open to anyone to draw a conclusion from the known facts, but the usual inference made from this definition is that chorea is a brain inflammation caused directly by the rheumatic invader. This definition and the inferences from it differ so remarkably from a legitimate conclusion based on the available evidence that a reconsideration of the facts is overdue. In the first place, chorea is a disorder whose structural pathology is quite unknown.

"Microscopical changes," write Buzzard and Greenfield (1921), "in the central nervous system in cases of chorea have usually been conspicuous by their absence, but attention has been called to the occasional presence of hyperaemia and of small thrombotic lesions which, however, are by no means constant."

Lewy—quoted by Findlay (1931): "Summing up the position in 1924, Lewy states quite categorically that changes are very seldom found, that these are of no definite nature and are no more than are to be observed in the brains of patients dying from any acute disease."

Freeman (1933) makes no distinction between the morbid anatomy of the brain in acute rheumatism and chorea. He classes the changes in the brain with those seen in typhus and the rickettsias.

Holt and McIntosh (1940) write: "There has been little constancy in the findings in patients who have died with chorea, and there is still some doubt as to the seat of the morbid process. Degenerative changes in the basal ganglia, the cortex, and the cerebellum have been described by Lewy and others in a number of instances. In other cases no such lesions have been found although carefully searched for, and one must assume that the disturbance is functional."

These authors define chorea as "a functional disorder of the nervous system characterized by sudden aimless, irregular movements often accompanied by muscular weakness and emotional instability." Kinnier Wilson (1928) writes: "Choreic motor disorder manifests itself through the pyramidal tracts, which must be in a condition of relative integrity for hyperkinetic symptoms to appear, and yet they exhibit some defect of function."

Chorea is a disorder which to-day steadily diminishes in frequency and severity. Even in days when it was more common and more violent Still records that "there are exceedingly rare cases in which it proves fatal by its violence. . . . Almost invariably if death occurs during chorea it is due to endocarditis or pericarditis." A survey of recently published necropsies suggests that the morbid anatomy described depends on the supervening rheumatic inflammation. The changes recorded in the brain are widespread from pons to cortex, and it can only be said of such changes that they are what would be expected of acute rheumatism by comparison

with the morbid anatomy of other organs, and if these extensive lesions of meningo-encephalitis are proffered for the structural basis of uncomplicated chorea then they bear little relation to the clinical picture of the disorder.

That chorea is a functional nervous disorder unassociated with brain inflammation is borne out by clinical observation. It is accompanied by no pyrexia, by no leucocytosis, by no signs of inflammation in the cerebrospinal fluid, and by no raising of the sedimentation rate unless carditis is present. The movements of chorea cease completely during sleep, unlike the similar movements that are induced by encephalitis. Recovery from chorea is complete and there are never any organic nervous sequelae. The uncomplicated case of chorea runs its course, from onset to recovery, without one clinical or laboratory sign which indicates an infection or inflammation. I know of no other disease in which, without some positive evidence, inflammation and infection are generally assumed to be present.

It is possible that invasion of the brain by a virus, activated on the one hand by emotional stress and on the other by the haemolytic streptococcus, may give rise to the emotional and motor instability which is called chorea, without revealing its penetration by the usual signs of infection. This is an adequate and attractive theory, but without proof. It is accepted by most physicians that chorea is often preceded by a prolonged emotional strain, such as the "anxieties engendered in nervous children by the examination system" or by domestic stresses or, more rarely, by a sudden shock or fright. It occurred to Findlay that the "chorea induced by fright might be different in nature from that arising spontaneously; but of the 36 cases with a history of fright cardiac disease was present in 47%, and of the 254 cases in which no history of fright was obtained cardiac disease was also present in 47%, so that there seems little justification for such an assumption." It would be possible to quote from a dozen authors who deny that such emotional disorders have any aetiological significance in the development of chorea: believing as they do that chorea is caused by a rheumatic infection, these physicians cannot be expected to agree that it may also be initiated by the school inspector or by domestic infelicity. They therefore suggest that an attack by a dog, or whatever it may be, is too trivial an incident to occasion such a disorder. This will be generally accepted. The fright has the same relation to the ensuing chorea as the murder of the Archduke at Sarajevo had to the development of war in 1914. This view that chorea was often emotionally induced was firmly held by nineteenth-century physicians, and it is accepted as firmly by most physicians to-day.

Sheldon (1936) writes: "The important part played in the production of chorea by the stress of education cannot be doubted. There is often a history of some shock or fright at the beginning of an attack."

Carey Coombs (1924) states: "Nothing is more certain than that nervous stress precedes the onset of chorea in a number of cases—a number too large to be explained away."

Winnicott (1938) says: "In my own clinic I had no difficulty in collecting 50 cases of chorea following acute or prolonged emotional strain."

Gerstley *et al.* (1935), after a close clinical, psychiatric, and social study of 58 children in Chicago suffering from chorea, writes: "Psychic trauma seemed so intimately related to the actual onset in 22 cases as to force the question of its being the activating factor. Domestic discord was a prominent feature. It was plainly apparent in 32 families and extreme in 13. The onset of acute manifestations often followed a domestic crisis such as divorce, separation, desertion, drunkenness, and the advent of stepbrothers and stepsisters. Other types of emotional injury were common. In three girls the onset was related to attempted rape. In four others the child lived in continuous dread of assault by undesirable characters in the neighbourhood. One child was aware of the illicit sexual relations of her mother. In others the onset followed acute fright. In short, in our series psychic trauma resulting from fright or overwhelming grief stood out far more strikingly than did any history of infection."

A reflex of the Chicago underworld in the early 1930's! Of the 18 cases of chorea seen by me during the last five years four started acutely after a sudden fright. One child developed chorea actually during an air raid, in one it followed a few hours after a sexual assault, in one after an attack by a dog, and in the fourth after the child had been called to the front of the class by a school inspector and asked to recite. In six of the other children there was evidence of prolonged emotional stress either at home or at school. One child developed it after tonsillitis, and in three other children its onset accompanied an attack of acute rheumatism.

Two other facts in the aetiology of chorea concern social grouping and sex incidence. The social grouping in chorea is even more marked than in acute rheumatism. Most physicians can report instances of acute rheumatism among children of the well-to-do classes (see below), but chorea is rarely present among these children. Still (1927) saw only one case of chorea in his consulting practice in 700 consecutive cases between the ages of 6 and 10 years. Chorea is three times as common in girls as in boys. Still (1912) attributes this to the greater nervous instability of girls, and here few will be found to disagree. This remarkable disparity in sex incidence is not shown by rheumatic arthritis or carditis.

The Relation of Chorea to Rheumatism

The facts concerning the relationship of chorea to rheumatism may be concisely stated. They are that (1) rather more than one-quarter of all rheumatic children enter the rheumatic state by way of chorea; (2) in addition, another quarter of all rheumatic children develop chorea at some time in the evolution of their rheumatism; and (3) a number of children with chorea, estimated by various authorities to be between one-third and one-half, never develop any rheumatic episode.

These facts mean that chorea is a frequent associate of the rheumatic state in children. In some children the choreic state never progresses to rheumatism; in others the chorea precedes the rheumatic state by weeks, months, or years; while in others chorea develops during the phase of acute rheumatism or at some time after it. The inference from these facts is that the effect of the rheumatic inflammation on the cerebrum of a predisposed child is of exactly the same nature as the effect of prolonged emotional strain or acute psychic trauma. It is suggested that all these factors operate by heightening an emotional and kinetic instability which is already present in the child. It is apparent that the association of chorea with rheumatism is without parallel in clinical medicine. The profound difficulties in understanding this association come near to solution if the rheumatic state is regarded as a unique disorder with two components—nervous instability on the one hand and an inflammation of the heart and joints on the other. Both of these components may occur independently, but either, in some unexplained way, favours the development of the other. In any case the facts concerning chorea do not support any theory that chorea is directly due to the rheumatic "invader" or to "rheumatic toxaemia." It may be regarded either as a prelude to the rheumatic state or its accompaniment; but frequently, and fortunately, it is neither the one nor the other.

Chorea, then, may be defined as a functional disorder of the nervous system, characterized by irregular motor activity and emotional instability, which develops in predisposed individuals, particularly girls of the poorer classes, following acute psychic trauma or prolonged psychic stress, or during and after the development of the rheumatic state.

(To be concluded. A list of references will appear at the end of Part II)

The Minister of Health announces (Circular 2734) that he has had under review the arrangements for the supply of insulin free or at a reduced price to persons suffering from diabetes. Under the National Health Insurance Acts an insured person entitled to medical benefit may obtain insulin free if it is prescribed or dispensed by his insurance doctor. Insulin may also be provided as part of medical relief for any destitute person under the Poor Law Acts. As regards school children, in a few cases the Board of Education has in the past sanctioned the supply of insulin free or at a reduced price where the parents could not afford the whole cost. This sanction is now extended so that all education authorities may, for the duration of the war, supply insulin free or at a reduced price to all children at elementary schools or at institutions for higher education. The needs of other persons for whom there is no public provision apart from poor relief, such as dependants of insured persons, widows and spinsters engaged in household duties, and merchant seamen on foreign-going ships, are to be met by a wider use of the powers given to local authorities under the Public Health Act, 1936, temporarily to supply medicine to the poorer inhabitants of the district. The Minister now gives the necessary consent to the supply of insulin to such persons for the duration of the war.

A CASE OF WEIL'S DISEASE IN AN ARMY CAMP

BY

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In the last few years numerous articles on leptospirosis icterohaemorrhagica have been published in this country. The cases were either sporadic or occurred in endemics in certain occupations (sewer labourers, fish-workers, coal-miners, etc.).

The first authentic record was that of Manson-Bahr *et al.* (1922). In 1923 an epidemic of jaundice in coal-pits in East Lothian was described by Gulland and Buchanan (1924). In 1934 Hamilton Fairley reported cases of leptospirosis among sewer labourers in London. Swan and McKeon in 1935 recorded 12 cases among coal-miners in Northumberland and Durham, to which they added 17 others in 1938. Davidson and Smith in 1936, describing Weil's disease in fish-workers, gave a detailed account of its clinical manifestations. Willoughby and Shera (1934), Watson, McLeod, and Stewart (1935), Maxwell (1935), Wolstencroft (1935), Halsted (1935), Neale (1935), Alston (1935), Lendrum (1936), and Stuart (1938) each describe a case of Weil's disease. Alston and Brown have reported several cases in sewer-workers. In 1936 cases among soldiers bathing in the Basingstoke canal in the Aldershot district were published. Kenneth Robertson (1938) reported 4 cases of Weil's disease infected from the same stream. This short review does not claim to be complete.

Case Report

Soldier aged 22, admitted to hospital March 31, 1942. Previous history: At age of 6, pneumonia, measles; 1939, fracture of os calcis. The history of the present illness was as follows. March 28, 1942, in the morning felt "cold running down his back" on several occasions. At noon was giddy, went to bed, and slept the whole afternoon. In the evening he had several attacks of shivering and sweated freely. On attempting to rise his legs felt weak, and after some steps he was compelled to lie down again. Vomited. Sleepless at night because he felt very hot and had agonizing pain in legs. Following day remained in bed; refused food; was feverish whole day. Had to be helped to lavatory; complained of stabbing pain in knees, severe pain in calves, and a feeling as if knees would give way. From time to time had gripping pain in stomach, and nausea. In the evening seen by M.O., who prescribed some cachets. Restless night. March 29: afternoon temperature 102.4° F.; 30th: morning 99.3° F.; afternoon 103.3° F. Noticed difficulty in breathing deeply on account of catching pain below the costal margins. Stools normal. The patient was living in a camp which was infested with rats. Although he did not on any occasion come into actual contact with a rat, he did handle a rat-trap.

On admission, March 31, 1942, he complained of weakness and continuous pain in his legs, increasing at any attempt to get up ("as if someone was cutting through his muscles with a knife"). Loss of appetite. Micturition normal. T. 100.2–101–100° F. Skin moist, hot, slightly jaundiced. Herpes facialis at right angle of mouth. Slight congestion of conjunctiva of eyelids and eyeballs. Tongue slightly coated with white fur. Mucosa of soft palate, tonsils, and uvula congested; uvula slightly oedematous. Forcible pulsation of carotid arteries. Lungs and heart, N.A.D. Pulse 96, regular. Tenderness in right upper abdomen on pressure; no guarding, no mass palpable. Spleen and liver not palpable. Muscles of both calves extremely tender on pressure. The patient lacked the strength to lift his legs from the bed. The muscle tone was greatly diminished in both limbs. Knee and Achilles tendon jerks almost absent. Plantar reflex normal. Urine: Dark yellowish-brown; albumin ++; urobilinogen +++. Deposit: Very scarce red and white cells; no casts; some round epithelial cells, and several large epithelial cells containing bile pigment and showing degenerative changes.

April 1.—T. 101–99.1–101.5–100° F. Headache. Slight rigidity of neck; conspicuous jaundice. Urine: Albumin ++; bilirubin +; urobilinogen +++. Deposit: Numerous granular and hyaline casts; few R.B.C. and round epithelial cells.

April 2.—T. 99.2–97–99–98.4° F. Jaundice intense; orange-yellow colour. Conjunctivae very congested; pink eyes. Pains in eyes and headache. Tenderness in right upper abdomen persisting; tenderness of calves decreasing. Vomited several times. Felt very weak. Herpes spreading with haemorrhagic crust. Tongue: thick dry grey-brown fur. Capillary resistance test, negative. B.P., 90/50; pulse 68; blood urea, 100 mg. per 100 c.cm.

April 3.—T. 99–97.8–99.2–99° F. Complained of intense itching of skin. Small petechiae on sides of thorax and abdomen. Morbilliform rash over loins, sides of abdomen, and below scapulae; symmetrical distribution. Knee- and ankle-jerks: L. absent, R. very diminished. Tenderness of muscles of right arm. B.P., 95/55; urine scanty—1 c.cm. Cheeks sunken. Throat dry.

April 4.—T. 99.7–97–98.9–98.4° F. Agglutination with *L. icterohaemorrhagiae*, 1: 320. No leptospira found in urinary deposit. Patient drowsy. Rash gone. Pink eyes. Intense itching of skin. Petechiae on sides of thorax and abdomen. Sputum blood-stained. No leptospira found in sputum.

April 5.—T. 98.5° F. (max.). Passed fair amount of urine after sod. bicarb., pot. citrate, āā 30 gr. 2-hourly, and hypertonic glucose.

April 6.—T. 98.2° F. (max.). Patient drowsy. Cheeks sunken. Tenderness localized to gall-bladder area. Hard axillary and inguinal glands of pea and bean size. Sputum still blood-stained. Calf tender on left side. Urine: Trace of albumin.

April 7.—T. 98.4° F. (max.). Acid fetor ex ore. Pink eyes. Jaundice still very marked. No leptospira found in urinary deposit (stained Giemsa: Fontana's stain not yet available). Sternal puncture did not reveal leptospira.

April 8.—T. 98.3° F. General condition slightly improved.

April 9.—T. 97.9° F. Less jaundiced. Few blood specks in sputum. Herpes disappearing. Tongue coated but moist. Photophobia.

April 10.—T. 98° F. Patient less drowsy; felt better. Jaundice decreasing, as well as the hyperaemia of conjunctiva. Gall-bladder area still tender. Numbness in lower limbs.

April 11.—T. 98.9° F. Tongue almost clean, moist. Felt much better. Although jaundice less, had intense itching all over the skin. Slight tenderness in gall-bladder area. Agglutination with leptospira, 1: 4000.

April 13.—T. 98.8° F. Almost complete absence of skin sensitivity to touch and pain over left leg and thigh—very slightly impaired on right side. Absence of skin sensitivity to heat over both legs and left thigh; diminished sensitivity over right thigh. Ankle-jerks present. Left knee-jerk absent, right diminished. Had paraesthesia below knees.

April 15.—T. 98.5° F. Knee-jerks absent, ankle-jerks present. Skin sensitivity over left limb reappearing, over right leg impaired. Vibration sense absent over right leg, present over left. Urine: No albumin. Deposit: A few granular casts, round epithelial cells, urethral epithelial cells, leucocytes, amorphous urates. All stained with bile.

April 16.—T. 99.2° F. Epistaxis. Knee-jerks returning. Skin sensitivity to heat reappeared over right leg; tactile sensitivity still impaired. Vibration sense normal.

April 17.—T. 99.2° F.; April 18, 98.6° F.; April 19, 99° F.

April 20.—T. 97° F. Complained of itching of skin. Jaundice slight. Skin sensitivity normal. Knee-jerks diminished (especially right).

April 24.—T. 98.4° F. Glands still enlarged.

April 27.—T. 98.8° F. Leptospira found in urinary deposit in fair amount (stained by Fontana's method). No albumin.

May 4.—T. 98.6° F. Urine: Trace of albumin. Knee-jerks diminished but present.

May 8.—T. 98.5° F. Urine: Trace of albumin. Deposit: Scanty granular casts, epithelia. No spirochaetes seen (Fontana's method).

May 9.—T. 98.7° F. Urine: Albumin present.

May 10.—T. 98.6° F. Urine: Albumin present. Glands almost entirely normal.

May 14.—T. 98° F. Urine: Trace of albumin.

May 15.—T. 97.3° F. Urine: Albumin absent. Deposit: A few leucocytes and epithelia from lower part of urinary tract. Few hyaline casts and pseudocasts.

May 28.—Patient felt well. Complained only of very slight general weakness. During last 6 weeks losing hair.

June 15.—Discharged to convalescent home.

The patient made an uninterrupted recovery.

Discussion

From a clinical point of view this was almost a classical case, showing most of the characteristic features of the disease. I would like to draw attention to the localization of the rash that appeared on the 7th day of illness and its quick disappearance. For these two reasons it could easily have remained undetected. There was a rather extensive involvement of the nervous system. In the first day or two there were signs of slight meningeal participation (neck rigidity), which subsided rapidly.

The knee- and ankle-jerks were practically absent from the day of admission (4th day). The ankle-jerks reappeared within

12 days, the knee-jerks in about a fortnight. There was an almost complete absence of skin sensitivity to touch and pain (pin-pricks) over the left lower limb, and impaired sensitivity over the right one. (It is possible that previously the right side was more affected.) The sensitivity to temperature and the vibration sense were both involved. These sensory troubles subsided at about the same time as the tendon-jerks were returning. Paraesthesia was present in the legs. I am indebted to Major-Gen. Priest for having drawn my attention to these sensory changes, which were most probably due to a polyneuritis. Lendrum, Alston, and others report absence of tendon-jerks in their cases. A detailed account of nervous complications of Weil's disease is given by Vagn Mortensen.

Our case is a further proof that whenever an acute febrile illness appears, associated with nephritis, severe muscular pain, and great tenderness in the muscles of the limbs, one must consider the possibility of Weil's disease. And if the interrogation of the patient proves that there was a possibility of infection by rats, serum treatment should be at once introduced, without waiting for the laboratory confirmation of the diagnosis. The highly beneficial result of this treatment, if started in the pre-icteric stage, has been confirmed by Schüffner, Kenneth Robertson, and others.

As to the source of infection of the present case it is interesting to note that there was no contamination by any of the ways commonly described. The patient was a young soldier living in a camp in the country. At the time of the year there was no bathing, and had it been an infection of the water source several cases would have been expected from the same unit. The only other case of febrile illness with headaches and very slight pains in the lower limbs, but without nephritis or jaundice, serologically did not prove to be a leptospiral infection. The camp where the patient was living, and especially the neighbourhood of the stores where he was working, was infested by rats which he and his comrades used to "hunt." The patient used to handle a rat-trap, and very probably was infected by the animals' excreta on the trap. He had no abrasions on the skin of his hands; therefore, infection was most probably via one of the mucosae contaminated by his fingers.

Owing to the war, the laboratory investigations were limited to the minimum. Thus, blood urea tests were made only once, on the 6th day of illness (100 mg. per 100 c.cm.). At the height of the uraemia this figure would have undoubtedly been higher. There were no reports about the degree of bilirubinaemia.

Fairly detailed haematological examinations were performed by me. The red cells during the peak of the jaundice—from about the 7th to the 17th day of illness—showed a marked macrocytosis. There were a few R.B.C. with punctate basophilia. The slight degree of anaemia at the end of the 3rd week (80% Hb; 4,045,000 R.B.C.) disappeared in the 4th week (85% Hb; 4,810,000 R.B.C.). The number of W.B.C. increased from 13,350 on the 4th day to 21,150 on the 13th, returning to normal figures (7,800) on the 28th day of the disease.

Whereas at the beginning only the neutrophils accounted for the leucocytosis, from the end of the second week the lymphocytes were also participating in it. After the return of the neutrophils to their normal figures the lymphocytosis continued. During the period of neutrophilic leucocytosis there was a shift to the left from the 11th to the 13th day, with a very noticeable number of metamyelocytes and myelocytes. In view of the good recovery of the patient we can refute the claim made by some haematologists that this is a bad prognostic sign in Weil's disease. During the stages of leucocytosis there were toxic changes of medium degree in a part of the neutrophils, such as coarse irregular granules, basophilic inclusions and vacuoles of the cytoplasm, and slightly "toxic" nuclei. Eosinophils were never completely absent, and during the jaundice and the recovery stages there was sometimes an eosinophilia. The sternal puncture showed changes usual in infective conditions with neutrophil leucocytosis.

Bacteriology.—When chemicals for the Fontana stain were provided I succeeded in demonstrating the leptospira in the urinary deposit on the 33rd day of illness. No leptospira were found after the 40th day. For the bacteriological investigations of the case I am indebted to Dr. Nancy Laughton of the Department of Bacteriology, University of Birmingham. Her report of May 11, 1942, was as follows:

"Three specimens of urine were inoculated intraperitoneally—those of the 8th, 12th, and 20th days of the illness. The animals inoculated with the first and the last showed no illness. The former is still apparently healthy. The latter showed no sign of illness or jaundice. It was killed on the 10th day: the necropsy revealed no evidence of infection. Portions of the liver and spleen were macerated and reinoculated into another 6-weeks-old guinea-pig. This animal appears quite well after 14 days.

"The guinea-pig inoculated with the 12th-day urine died on the 12th day after inoculation. The necropsy revealed marked jaundice. The peritoneum was thickened, the suprarenals were congested, and there were marked haemorrhages into the lungs.

"Although we were not able to recover the living organism by cultural methods, sections of the liver and kidney stained by Levaditi's method show a large number of leptospira."

The blood serum agglutinated *L. icterohaemorrhagiae* 1:320 on the 8th and 1:4000 on the 15th day. Further specimens were not examined.

Treatment.—This was purely symptomatic, as the patient was admitted on the 4th day of the disease, when the urine examination already revealed a great increase in urobilinogen. Serum would have taken too long to obtain for it to be of any appreciable value in treatment. From the first day the patient had rich glucose drinks, and at the peak of the disease glucose intravenously and glucose-saline as intravenous drip infusions, together with pot. citrate and sod. bicarb. āā 30 gr. 2-hourly. From the 10th day the patient had hexamine 10 gr. t.d.s. The bowels were moved by enemas and magnesium sulphate. We cannot form any opinion of the effect of sulphapyridine given on the 4th and 5th days of illness in a total dose of 5 g.

From this case once again it is evident that we have to reckon with the possibility of Weil's disease occurring whenever wild rats are present (25% of all rats in this country are infected—Hurst, 1940). The means of infection are numerous, and these have been described in many excellent publications. I would merely like to point out the necessity for the systematic extermination of rats, especially in Army camps, where they usually swarm in the proximity of cookhouses and stores if not destroyed in time. Persons dealing with the destruction of rats should be made aware of the danger they run when handling objects that might have been soiled by the dejecta of these animals.

Summary

The case of a young soldier who contracted Weil's disease while handling a rat-trap is reported.

Apart from a typical clinical picture a marked involvement of the nervous system was present.

Leptospira were found in the patient's urine and in the kidneys, liver, and adrenals of the guinea-pig inoculated with the patient's urine.

Agglutination with *L. icterohaemorrhagiae* gave titres of 1:320 and 1:4000 on the 8th day and the 15th day respectively.

I wish to thank Dr. D. R. Rigg, medical superintendent of the hospital, for his interest and permission to publish the case.

BIBLIOGRAPHY

Alston, J. M. (1935). *Lancet*, **1**, 806.
—— and Brown, H. C. (1935). *British Medical Journal*, **2**, 339.
Brown, H. C. (1935). Ibid., **1**, 411.
Davidson, L. S. P., and Smith, J. (1936). *Quart. J. Med.*, n.s., **5**, 263
Fairley, N. Hamilton (1934). *British Medical Journal*, **2**, 10.
Gulland, C. L., and Buchanan, G. (1924). Ibid., **1**, 313.
Halsted, E. A. M. (1935). Ibid., **1**, 1067.
Hurst, Sir Arthur (1940). *Medical Diseases of War*, London.
Jeghers, H. J., Houghton, J. D., and Foley, J. A. (1935). *Arch. Pathol.*, **20**, 447.
Lendrum, J. D. (1936). *British Medical Journal*, **2**, 423.
Manson-Bahr, P. H., Wenyon, C. M., and Brown, H. C. (1922). *Lancet*, **2**, 1056.
Maxwell, J. (1935). *Lancet*, **2**, 998.
Mortensen, Vagn (1940). Ibid., **1**, 117.
Neale, A. V. (1935). Ibid., **2**, 999.
Robertson, K. M. (1938). *British Medical Journal*, **2**, 1300.
Schüffner, W. (1934). *Trans. roy. Soc. trop. Med. Hyg.*, **28**, 7.
Stuart, R. D. (1938). *Lancet*, **1**, 603.
Swan, W. G. A., and McKeon, J. A. (1935). Ibid., **2**, 570.
—— —— (1938). Ibid., **1**, 201.
Watson, G. W., McLeod, J. W., and Stuart, M. J. (1935). *British Medical Journal*, **1**, 639.
Willoughby, W. G., and Shera, A. G. (1934). Ibid., **2**, 14.
Wolstencroft, J. (1935). *Lancet*, **1**, 86.

Irvine H. Page and others (*Amer. J. Physiol.*, 1941, **135**, 214) show that the liver is the chief source of renin activator. In the case of removal of or damage to the liver by toxic substances, there is no pressor response to injected renin.

THE INACTIVATION OF PHOSPHORUS ON THE SKIN

BY

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AND

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White phosphorus as a hazard may appear in a variety of physical forms. Of these the most important are: (1) solid, (2) dissolved in solvents (CS_2, benzene, mineral oil), (3) dissolved in solvents + rubber. The use of copper sulphate solutions for the inactivation of phosphorus on the skin has long been practised, and has been suggested by the Ministry of Home Security (1942) as a method in the case of burns from bombs containing phosphorus. An improved composition in which copper sulphate is dissolved in aqueous glycerol has been claimed by Godding and Notton (1942). The very high glycerol content in this preparation is a serious drawback to its general use in the event of the widespread use of phosphorus bombs. An examination of the question of inactivation of phosphorus in the conditions listed above has drawn attention to the limitations of the methods hitherto proposed. We now describe a preparation of our own which has certain advantages.

According to the form in which the phosphorus is present on the skin, the aim of treatment is:

For solid phosphorus, to coat the element with a non-ignitable layer and to render large particles visible and thus amenable to mechanical removal; in the case of minute particles, to convert the element completely to an inactive form, allowing of removal by washing.

For phosphorus in solution, to inactivate the element by means of an agent which mixes freely with the solution or which brings about efficient emulsification, allowing of intimate contact with the inactivating agent.

For phosphorus in solvents containing rubber, to inactivate the element in the highly viscous mass by means of an agent which permits ready emulsification and which, in addition, allows complete removal of the rubber from the skin.

Copper compounds in a suitable physical form can bring about all of these desired effects.

Mode of Action of Copper Compounds on White Phosphorus

Whilst the blackening which rapidly follows the application of copper salts to white phosphorus is commonly held to be due to the formation of non-igniting copper phosphide, this is not the whole story. Copper phosphide is certainly produced, but this is followed by a reaction leading to the formation of various phosphorus acids—mainly phosphoric—and metallic copper (see Straub, 1903; Bird and Diggs, 1914). The main reaction is the formation of metallic copper, as follows:

$$5Cu^{\cdot\cdot} + 2P \longrightarrow 2P^{\cdot\cdot\cdot\cdot\cdot} + 5Cu$$

Thus, if $CuSO_4$ is used, a necessary accompaniment of the reactions is the formation of sulphuric acid and phosphoric acid, which adds to the acidity already present if the phosphorus has ignited. The consequent need for thorough alkalization has been stressed by Godding and Notton (1942) and Jones (1942).

In the circumstances in which aqueous copper sulphate would be used in inactivating solid phosphorus in a burnt area nothing like complete inactivation of the element could be obtained. If, further, the phosphorus is in a form with which water does not readily mix, then inactivation can be expected only at the interfaces of the two liquid phases. In the special case of incendiary-bomb compositions, of a highly viscous nature, the application of aqueous copper sulphate cannot be expected to be effective. Godding and Notton's mixture was devised to overcome this difficulty and, as we shall see, is a distinct advance, but it has the disadvantage of demanding considerable glycerol and not acting very effectively on solid phosphorus or phosphorus in solution (CS_2, benzene, oil).

If an incendiary mixture containing rubber dissolved in a solvent be smeared on the skin the rubber adheres to the skin and in a few moments white fume appears but there is no rapid ignition. If now Godding and Notton's mixture be applied and rubbed well in, a greenish mass is formed, slowly turning brown and staining the skin. With continued rubbing the rubber in the composition is in part detached, but the greater portion of it is not readily removable, and may contain active phosphorus. If the incendiary composition is treated with Godding and Notton's mixture on a watch-glass reaction is rapidly initiated, but to obtain complete inactivation it is necessary to continue to mix energetically for a considerable period.

A New Preparation for inactivating Phosphorus

Having regard to the fact that phosphorus is essentially lyophilic in nature and thus not readily wetted by water, it appeared to us that the reaction of inactivation might be hastened by the presence of a fat-solvent, using the copper in an oil-soluble form. If, further, the solvent used were capable of dissolving rubber a marked advance might be expected. Such a mixture has been devised. It consists of copper oleate, trichloroethylene, Turkey-red oil (70% ammonia-finished), and surgical spirit, and is prepared as follows: 25 g. copper oleate, is dissolved in 35 g. trichloroethylene; 25 g. of Turkey-red oil (sulphonated castor oil, 70% ammonia-finished) is incorporated into the mixture, after which 15 g. of surgical spirit is added. The copper content of this solution may reach 2.5%, but varies according to the quality of oleate. The presence of the alcohol cannot be dispensed with in cases of compositions containing rubber; but in other circumstances (e.g., phosphorus as an industrial hazard) it may with advantage be omitted.

This solution is readily prepared (Godding and Notton's mixture is not easily prepared), is perfectly homogeneous, and is deep blue-green in colour; it is a solvent for rubber and is easily emulsified with water. The constituents are available.* Its effects on phosphorus in various forms are summarized in the following table of comparison with other preparations:

Form in which Phosphorus is Present	1% $CuSO_4$ Aqueous Solution	$CuSO_4$, Glycerol, and Starch Mixture of Godding and Notton	Oil-soluble Cu Preparation
Solid	Rapid surface inactivation only	Very slow surface inactivation	Very rapid inactivation, with disintegration of the surface layers
Solution in CS_2	Inactivation at interface only	Inactivation at interface	Rapid and complete inactivation
Solution in benzene	" "	" "	" "
Solution in liquid paraffin	" "	More rapid inactivation due to some emulsification	" "
Solution in benzene and rubber	Poor and incomplete owing to lack of emulsifying properties	Very rapid and complete if well mixed, due to good emulsification	Rapid and complete inactivation. The reaction, once started, proceeds to completion with great speed

Advantages of the New Method

The following are the advantages of the new preparation: (1) It is readily miscible with oil, being dissolved in an oil-solvent which is also a solvent for rubber. This allows intimate contact with white phosphorus as well as with any oily composition in which phosphorus may be dissolved—e.g., in an incendiary bomb or other weapon. (2) It reacts progressively with phosphorus, not merely inactivating the surface of contact but transforming the element into easily removable products. (3) Since the preparation contains its own emulsifying agent (Turkey-red oil), it is completely removed from the skin by

* Copper oleate is a commercially available material, but in case it cannot be obtained, an equally effective material (although of lower copper content) can be prepared in the following way: Copper sulphate (10 g.) is dissolved in hot water (40 c.cm.) and 70% Turkey-red oil, ammonia-finished (25 c.cm.), added, with stirring. An insoluble copper derivative separates, and after cooling is decanted from the water. The oily copper compound is dissolved in trichloroethylene (35 c.cm.) and any remaining water separated off. A further addition of 70% Turkey-red oil (25 c.cm.) is made, and finally surgical spirit (20 c.cm.).

water, carrying with it any oil or rubber that may have been associated with the phosphorus, as well as the detritus from the inactivating reaction. The skin is left almost entirely clean and unstained.

Anaesthetized rats were treated, after dehairing, with a few drops of white phosphorus dissolved in CS_2, and, after allowing the solvent to evaporate, the layer of phosphorus was inactivated by application of the above copper preparations. There was considerable difficulty in applying the 1% copper sulphate aqueous solution, since the rat's skin and the phosphorus layer are alike difficult to wet with aqueous solutions. The copper–glycerol mixture was better in this respect but reacted slowly compared with the oil-soluble copper preparation. Minute pieces of phosphorus applied to the skin were rendered inactive by the oil-soluble copper solution and disintegrated, while the copper sulphate solution and the copper–glycerol mixture rendered them inactive but left them entire. Here again the 1% copper sulphate reacted more quickly than the copper–glycerol once it had been brought into intimate contact with the phosphorus.

Phosphorus applied to the skin either alone or in solution in CS_2 appears to have no immediately deleterious action. Its danger resides wholely in its liability to ignite and cause burns which do not easily heal. This point was shown not only by animal experiments but by application to the human skin. Phosphorus allowed to ignite on the skin (after evaporation of the CS_2 in which the phosphorus was dissolved) is immediately extinguished by the oil-soluble copper preparation, and inactivation of the phosphorus begins almost at once.

Proposed Procedure for dealing with Phosphorus on the Skin

1. Extinguish burning areas (immersion in water or wet fire-blankets).

2. Apply oil-soluble copper compound to areas contaminated with phosphorus (swabbing, pouring over areas, in some cases even immersing affected parts: manner of application will suggest itself according to circumstances. In general it will be best to deal with the affected parts piecemeal while keeping the waiting parts wet with water).

3. After well-established and obvious inactivation of the phosphorus (in general, in from a few seconds to one or two minutes), wash the treated area with tepid water and swab off the contaminating material.

4. Treat area with excess sodium bicarbonate, working up into a paste with water.

5. Treatment of the burn itself will naturally depend on circumstances, but if all the phosphorus is inactivated and removed and all acidity is neutralized, accepted methods on the lines of antisepsis and mild tanning should be applicable. The location of the burn, its depth, and the amount of tissue destroyed must all be considered in the treatment. General rules for all cases are misleading.

Summary

The phosphorus-inactivating properties of 1% aqueous copper sulphate, the copper sulphate–glycerol–starch composition of Godding and Notton, and a new composition containing copper in an oil-soluble form made from copper oleate, Turkey-red oil (sulphonated castor-oil), trichloroethylene, and surgical spirit have been compared. The last is shown to be the most effective way of inactivating phosphorus, especially when associated with oil, solvents, or rubber. A procedure is suggested for dealing with cases contaminated with material from self-igniting bombs containing phosphorus, oil, solvents, and rubber.

N.B.—It must be pointed out that the treatment proposed is for phosphorus *on* the skin. The high content of trichloroethylene precludes use of the composition for such internal injuries as were recently described by Blaxland (1942), in which elemental phosphorus was diffusely implanted in the tissues.

References

Bird and Diggs (1914). *J. Amer. chem. Soc.*, **36**, 1382.
Blaxland, A. J. (1942). *British Medical Journal*, **2**, 664.
Godding, E. W., and Notton, H. E. F. (1942). Ibid., **1**, 433.
Jones, A. T. (1942). Ibid., **2**, 244.
Ministry of Home Security (1942). *Phosphorus and Other Bombs now being used by the Enemy*, August 1.
Straub, W. (1903). *Z. anorg. Chem.*, **35**, 460.

MODIFICATION FOR CO_2 ABSORPTION WITH THE FIELD-PATTERN BOYLE'S APPARATUS

BY

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With the object of effecting economy of gases I have devised a modification of the field-pattern Boyle's apparatus by which carbon dioxide absorption may be used. This has proved to be very satisfactory in practice. The essential additions are a flowmeter for "basal" oxygen and a soda-lime canister. A description of these improvisations is given in the hope that it may be of use to other anaesthetists.

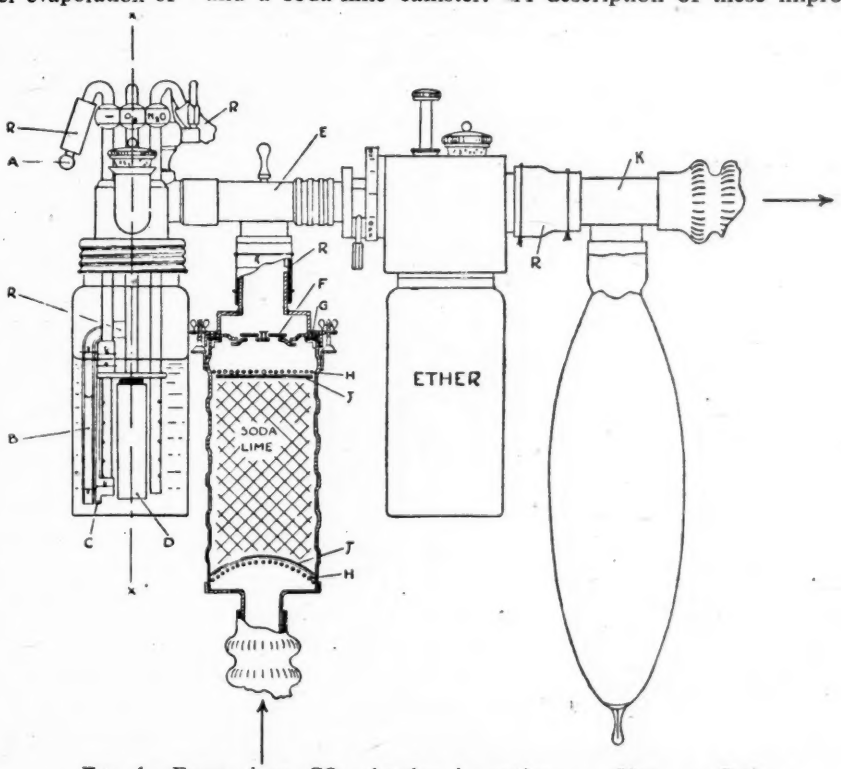

FIG. 1.—Front view; CO_2 absorber in section. A, Plug. C, Scale. E, Magill's bag-mount. R, Rubber connexions. (Other reference letters explained in text. Scale of drawings, 1/4 size)

The Flowmeter

The flowmeter (Figs. 1, 4, and 5) was designed to fit inside the sight-feed bottle, and is of the water-depression type. Its design was restricted by the limited space available. The oxygen cylinder is connected to the middle sight-feed tube, CO_2 not being used. Oxygen thus passes to the top of the bottle by way of the metal sleeve and tube (D), and escapes through a glass capillary (M). T indicates a connexion to the glass depression tube (B). The scale was cut from zinc-alloy sheet, and is wired to the normal oxygen sight-feed tube. Calibration was carried out by timing the displacement of water from a large measuring bottle. Preliminary experiments determined the proper size of capillary tube to obtain the desired range—200 to 650 c.cm. a minute.

Nitrous oxide is run in through the normal sight-feed tube.

The Carbon Dioxide Absorber

The canister was improvised from a training-model Service respirator container (Fig. 1). The bottom (inspiratory valve end) was unsoldered and fitted as a lid by attaching lugs to receive bolts fixed to the body. There are four of these, only two showing in the section. A rubber washer (G) ensures a gas-tight joint. A flat metal cylinder and a short length of 1-in. tube soldered over the hole in the lid enables a connecting tube to be attached. All the contents of the container were

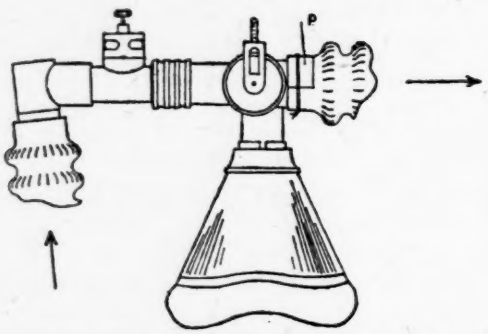

FIG. 2.—Arrangement of face-piece fittings. P, Tin strip over slot in stopcock.

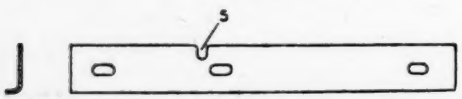

FIG. 3.—Detail of extension bracket. S, Slot for handle of bag-mount valve when closed.

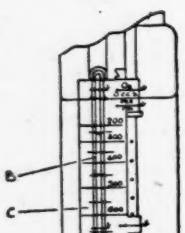

FIG. 4.—Side view of flowmeter, showing scale.

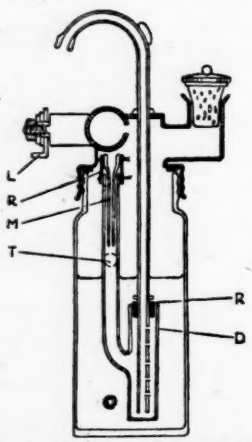

FIG. 5.—Section of flowmeter.

removed and two of the pieces of metal gauze (H) with lint pads (J) used to retain the soda-lime, 1 lb. of which can be accommodated. The unfilled space of about 1 in. at the upper end is important to avoid "channelling."

Arrangement of Apparatus

The arrangement shown in Fig. 1 works on the "circle" principle and permits vaporization of ether by the expired gases. The absorber is connected to the Magill bag-mount which is fitted between the ether bottle and flowmeter. The latter is supported by an extension bracket cut from brass sheet (Fig. 3, and L, Fig. 5). The bag is mounted on an improvised T-tube (K). One-way gas flow is attained by incorporating the stopcock from a nitrous oxide–air apparatus, with the cap over the expiratory valve removed, in the face-piece fittings (Fig. 2). The inspiratory valve of the respirator (F) is fitted, as shown in Fig. 1, to prevent back-flow of gases into the absorber when it is not in circuit. This assembly results in some expiratory resistance, due to the by-pass control on the ether bottle. With quiet breathing the pressure at the mask is not excessive, being between 2 and 3 mm. Hg; but an appreciable increase occurs with deep breathing and if the gases are bubbled through the ether.

Two alternative arrangements may be used. In the first, the flowmeter and ether bottle are left in their usual positions and the absorber is fitted between the ether bottle and the rebreathing-bag. In the second, the canister is fitted near the face-piece and "to-and-fro" absorption is used. Both alternatives overcome the expiratory resistance, but ether vaporization is dependent on the small "basal" flow of gases only.

Additional corrugated tube is improvised from the respirator connecting tube. All rubber connexions are secured by binding with wire. The materials used are easily obtainable in the field, and constructional work can be carried out by the nearest workshop unit. It will be noted that the Boyle apparatus is not altered structurally.

Notes on Technique

(1) Adequate sedative premedication is desirable.

(2) A full anaesthetic dose of pentothal sodium, followed by nitrous oxide–oxygen with this apparatus, has been very successful.

(3) When an intravenous anaesthetic is not used, induction is most satisfactorily carried out by the "semi-closed" method, CO_2 absorption being started when surgical anaesthesia is well established.

(4) Owing to the diffusibility of nitrous oxide it is seldom possible to discontinue its flow completely, and about 500 c.cm. a minute is required for maintenance.

(5) The composition of the gas mixture tends to change slowly during the course of the anaesthesia. As with nitrous oxide–oxygen a fine balance is struck between anoxia and the patient becoming "lighter," this is important, and is best overcome by periodically emptying the bag and refilling with the appropriate mixture.

A NEW CIRCLE-TYPE CARBON DIOXIDE ABSORBER

BY

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With the collaboration of Messrs. Coxeter and Son, Ltd., who initiated this endeavour, a circle-type absorber with certain unique features, and in which anaesthetic requirements have been combined with mechanical efficiency, has been produced. The aims of its design and the way these aims have been achieved are as follows.

The machine was specifically intended to fit the standard Boyle machine that has been distributed widely in the E.M.S. It slides on two runners fixed to the table frame, and can be pushed under the top shelf when not in use. Minimum restriction to breathing was achieved by using wide-bore gas channels throughout, and making the patient's respirations take a path with as few changes of direction as possible. Large control drums are used and special glanding arrangements provided to eliminate leakage. In the ether vaporizer, wicks, which to be effective need several thicknesses and which soon cause restriction, have been eliminated. The moving parts of the reservoir bag are carefully balanced on ball bearings, and move with the slightest respiratory effort. The measured restriction of the circuit is 2 mm. H_2O with the ether and soda-lime "off" and 4 mm. H_2O with both "on."

High-efficiency absorption of CO_2 was achieved by departing from the orthodox type of circuit and employing one in which both inspirations and expirations pass through the soda-lime, thus combining the absorptive efficiency of the "to-and-fro" type with the practical advantages of the "circle-type" absorber.

The type of ether vaporizer normally used in an absorber circuit has a wick to give sufficient surface of contact of the

ether to provide a high enough concentration of ether in the mixture. The disadvantage of this type is the restriction caused by the wick and the gradual loss of efficiency due to condensation of water on the wick. Both these disadvantages are overcome in this vaporizer by dispensing with the wick and, instead, causing the gases to be deflected by baffles several times on

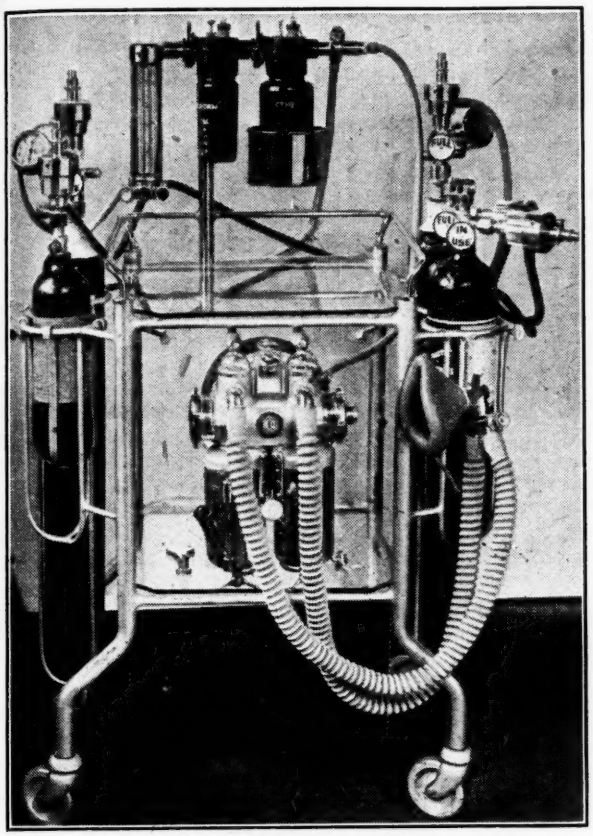

FIG. 1.—Boyle machine with absorber in place.

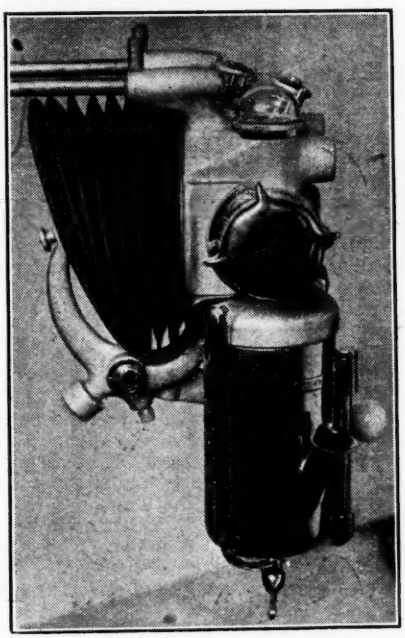

FIG. 2.—Side view of absorber showing bag and lever mechanism.

to the surface of the ether. By bringing the gases into the vaporizer at the centre of a concentric nest of baffles the lowest ether temperature is reached at the centre of the container. The temperature drop in the peripheral portions of the ether is at a minimum, and the gases before leaving the vaporizer are in contact with the warmest possible ether. The baffles, like the ether pot, are made of copper, and act as conductors of heat from the rest of the apparatus to the liquid ether.

To make inflation of the lungs easy, whether for control of the respiration or for the purpose of artificial respiration in emergency, the bag is of concertina shape. It is connected to a lever ending in a conveniently placed knob on the front of the machine. Depression of this knob compresses the bag with little effort on the part of the anaesthetist. The lever system is carefully balanced on ball bearings so that the bag moves with the slightest respiratory effort.

Other features of this absorber are: (1) The body of the machine is cast in one piece with the drum channels bored in it, to avoid leakage. (2) The slightest movement of the bag is transmitted to the knob, which can be easily seen. (3) Both expiratory and inspiratory valves are fitted on the machine, as well as a nipple through which air can be introduced. (4) The soda-lime canister is quickly removed by swinging aside a large easily loosened sling. (5) The gravity valves are made of scolam, a compressed fibre which allows them to be twice as thick as metal, thus lessening the possibility of warping, without increase of weight. These valves are visible, and in wartime are easy and cheap to replace.

Several of my colleagues have given a clinical test to this absorber, and for their helpful suggestions I am most grateful. They have confirmed my opinion that only as a result of collaboration between manufacturers and user can a real advance in the design of anaesthetic apparatus be made. A detailed account of this machine with the results of laboratory and clinical tests will be published shortly.

Medical Memoranda

Spina Bifida in Binovular Twins

In view of the rarity of spina bifida in twins and of the absence in the literature of any reference to its occurrence in binovular twins, the following case may be of interest.

CASE HISTORY

Mrs. B., a healthy 3-para, had had a normal pregnancy and was due to be confined about July 4, 1942. Labour started on May 28 about 11 p.m. The first twin was born at 12.40 a.m. on May 29 and the second ten minutes later. Both were males, and there was rather a large amount of liquor amnii. The first infant weighed 4 lb. 12 oz. and was 16 in. long; it had an open spina bifida (without a sac) in the lower dorsal and lumbar region 2¼ in. by 1¼ in., with an associated hydrocephalus showing separation of the bones of the vault of the skull. The infant lived 33 hours. There was some leakage of cerebrospinal fluid. The second twin weighed 3 lb. 12 oz. and was 14 in. long; it also had a spina bifida without a sac in the lumbar region, 2½ in. by 1½ in.; the head was of normal size. There was also some leakage of cerebrospinal fluid. This infant became slightly cyanotic after a few hours and lived 36 hours. There were two separate placentae, which looked perfectly normal, and two chorionic sacs. There is no family history of twins or congenital abnormalities, and there was no history of any maternal trauma during pregnancy.

COMMENTARY

Spina bifida is described as a condition (*Gray's Anatomy*, 1938) in which the coalescence of the lamina is not completed: a cleft is left in the arches of the vertebrae, through which protrusion of the spinal meninges (dura and arachnoid), and generally of spinal cord, takes place. It is commonest in the lumbar and sacral regions; its frequency is given as about 1 in 1,000 births. A sac may be present or absent; in the latter case there is a leakage of the cerebrospinal fluid, which is incompatible with life. Spina bifida is often associated with congenital hydrocephalus (Boyd, 1938).

There were no definite records of the occurrence of spina bifida till the middle of the seventeenth century. Tulpius (1652) described a case in *Observationes Medicae*, Lib. III, **129/130**, p. 240. There are several theories of the causation of spina bifida. J. F. Meckel maintains that it is produced in some mechanical way, involving interference with the nutrition of the embryo (Good, 1915). Wertheim (1857) advances the theory of maternal impressions and external influences, and as a proof of this he quotes a case of twins one of which died early while the other showed a large spina bifida with the absence of the sacral and coccygeal vertebrae. The mother had received a kick in the left groin from her husband some weeks before the mid-term of gestation. Koch (1881) believes in the theory of arrested development. The London Clinical

Society committee appointed in 1885 to report on the origin of spina bifida gave as a cause the primary defect in the formation of mesoblast from which the structures closing in the vertebral furrow are developed.

Bland-Sutton (1888) advanced a theory in which he regarded the spinal cord as a highly differentiated section of the primitive alimentary tract. Its central canal was originally part and parcel of the system, but is now functionless and, like obsolete canals in general, is often the seat of cystic dilatation. The conclusion arrived at by Good is that it is the arrested development of the mesodermal tissues from which the spinal meninges are produced, and that it is due to a mechanical cause which prevents the neural plate becoming converted into a neural tube; there is no evidence as to the nature of this mechanical agent.

A few cases are on record of spina bifida occurring as a family defect. Butler-Smythe (1889) reports 3 cases of spina bifida with hydrocephalus occurring in the same family. Pybus (1921) describes a family in which 4 children had congenital defects of the spine. The eldest child died at 18 months with spina bifida associated with hydrocephalus; the second, 10 years old, had spina bifida occulta, indicated by a scar and depression in the upper part of the thoracic region of the spine, a radiograph of which showed a defect of the underlying vertebrae; the third had a meningomyelocele in the lumbo-sacral region, treated successfully by operation; the fourth child had an exaggerated coccygeal dimple.

The only case on record of spina bifida in uniovular twins is from Norway (Eskelund and Bartels, 1941). There are no cases on record of spina bifida in binovular twins.

The dizygotic origin of the twins in the present case is confirmed by the two separate placentae and chorions and the absence of striking similarity in the general appearance of the two infants, which is in conformity with the foetal-membrane method and similarity method of diagnosis of zygotic origin of twins (Newman, Freeman, and Holzinger, 1937). This case tends to support the theory that the cause of spina bifida is primarily a defect in the development of the mesoblastic tissues from which the spinal meninges are produced, as this is the only factor that is likely to affect equally the two separate ova, rather than the mechanical agent or the external influences mentioned in the several theories advanced.

South Norwood. A. FRY, M.R.C.S., L.R.C.P., D.M.R.

REFERENCES

Bland-Sutton, J. (1888). *Trans. path. Soc.*, **39**, 432.
Boyd, W. (1938). *Textbook of Pathology*, p. 965, Philadelphia.
Butler-Smythe, A. C. (1889). *Lancet*, **1**, 272.
Eskelund, V., and Bartels, E. D. (1941). *Nord. Med.*, **11**, 2075.
Good, J. P. (1915). *An Enquiry into Causation of Spina Bifida*, University of Birmingham.
Gray's Anatomy (1938), p. 35, London.
Koch, W. (1881). *Beiträge zur Lehre von Spina Bifida*, Kassell.
Newman, H. H., Freeman, F. N., and Holzinger, K. J. (1937). *Twins: A Study of Heredity and Environment*, p. 32, Chicago.
Pybus, F. C. (1921). *Lancet*, **2**, 599.
Wertheim, C. O. (1857). *Mschr. Geburtsh. Gynäk.*, **9**, 127.

The Rh Factor in Haemolytic Anaemia of the Newborn

Boorman, Dodd, and Mollison (*Journal*, 1942, **2**, 569) suggest that only group O Rh-negative blood should be used for transfusion in cases of haemolytic anaemia of the newborn, with or without severe jaundice. This suggestion is based on the assumption, for which there is already some evidence, that blood of this group will prove to be immune to the action of the immune bodies responsible for the haemolytic process. Unfortunately, at present few laboratories have supplies of potent anti-Rh serum with which to establish a panel of suitable donors. I should like to make an alternative suggestion on the basis of the following two cases.

CASE I

A female infant aged 5 weeks was admitted to the Children's Hospital, Birmingham, on Aug. 2, 1939. She was the second child and was delivered at term; the first was said to have been very pale for two months, but was now healthy. Jaundice was observed within a few hours of birth, but was never more than a lemon colour and had faded by the seventh day. Pallor soon became marked and it persisted till admission. On Aug. 2, 4, and 8 transfusions of maternal blood—45, 45, and 50 c.cm. respectively—were given, with substantial improvement in the blood picture and the general condition. A sudden drop in colour index, mean cell volume, and mean diameter was noticed at this time, and the change in shape of the Price-Jones curve was such as only to admit of the conclusion that the infant's cells had been completely replaced by those of the mother. An aregenerative phase ensued from Aug. 5 to Aug. 15, during which no change occurred save for a steady though relatively slow drop in the red cell count. The onset of a fresh reticulocytosis, however, was accompanied by a dramatic change in the Price-Jones curve indicating the steady replacement of the donor's cells by those of the infant. The child died shortly afterwards of a severe intercurrent infection.

Table showing Laboratory Data of Case I

Date	Red Cells (mill.)	Hb %	C.I.	Retics. %	M.C.V.	M.D.	σ
2/8/39	1·23	27	1·08	16·3	92 μ^3	7·92 μ	0·885 μ
5/8/39	2·30	44	0·98	0·4	86 μ^3		
8/8/39	3·52	58	0·83	0	70 μ^3	6·80 μ	0·542 μ
14/8/39	2·54	40	0·80	0·6	71 μ^3	6·83 μ	0·495 μ
17/8/39	3·19	53	0·83	5·9	68 μ^3	7·26 μ	0·974 μ
21/8/39	2·61	45	0·88	14·4	77 μ^3	7·72 μ	1·102 μ
Donor's blood, 10/8/39 ..			0·86		68 μ^3	6·92 μ	0·495 μ

CASE II

A female infant—fourth pregnancy. First pregnancy: breech delivery, stillbirth. The second child was a full-term female infant who developed a mild form of haemolytic anaemia of the newborn with moderate jaundice. She was treated with liver extract (campolon) only, and is now healthy. The third pregnancy miscarried at 24 weeks.

The mother was delivered at term in the Maternity Hospital, Loveday Street, Birmingham, early on Sept. 2, 1939. The infant's spleen was found to be one fingerbreadth below the costal margin at birth. Jaundice was evident at dawn and rapidly became more pronounced, but it was never severe and faded completely by the fifth day. There was no anaemia at birth, but pallor became progressively more obvious despite frequent injections of campolon. Transfusions of the mother's blood were given on Sept. 10, 12, and 14—45, 50, and 50 c.cm. respectively—with great improvement. Here again the change in colour index, mean cell volume, and Price-Jones curve indicated replacement of the child's cells by the donor's; there was also a short aregenerative phase from Sept. 15 to 20, and thereafter a steady increase in the reticulocyte count, though no significant improvement in the red cell count occurred till Oct. 13. From this date recovery was rapid and uneventful. It is perhaps worth noting that this sudden improvement followed an injection of 1 c.cm. of campolon on Oct. 10. This is the only occasion in my experience of noteworthy improvement following or coinciding with liver therapy in this disease.

Table showing Laboratory Data of Case II

Date	Red Cells (mill.)	Hb %	C.I.	Retics. %	M.C.V.	M.D.	σ
2/9/39	4·90	121	1·21	33·5	108 μ^3	7·99 μ	0·885 μ
8/9/39	1·33	32	1·23	11·3	108 μ^3		
10/9/39	1·01	24	1·20	3·6		8·04 μ	0·745 μ
15/9/39	3·08	58	0·97	0·4	80 μ^3	7·56 μ	0·580 μ
22/9/39	3·06	59	0·96	1·4	79 μ^3	7·50 μ	0·565 μ
3/10/39	2·86	52	0·91	10·4		7·59 μ	0·603 μ
10/10/39	2·31	44	0·96	11·1	75 μ^3		
13/10/39	3·28	60	0·91	21·6			
20/10/39	3·52	62	0·90	22·2	80 μ^3		
17/11/39	5·15	88	0·86	3·5	77 μ^3		
Donor's blood, 12/9/39 ..			0·98		79 μ^3	7·39 μ	0·550

DISCUSSION

These two cases illustrate quite well the point I wish to make. When the degree of anaemia is such that transfusion is urgently needed it may be preferable to use maternal blood, the survival of which for some time is certain, rather than to risk repeated unsuccessful transfusions from a donor selected at random, and therefore probably Rh +, even though rapid destruction of the few native cells remaining may occur. I do not feel that this last is a valid objection to the procedure, for I take it the object of treatment in future will be to circumvent the haemolytic process in the early days by replacing the child's cells so far as possible by Rh-negative cells. On the other hand one would not willingly inject large doses of antibody if it could be avoided. There are two ways out of this dilemma. In the first place it is to be hoped that the serum of every woman whose child is affected will be examined for anti-Rh agglutinins. Where these are present in sufficient strength it will be possible, perhaps, to find a donor whose cells are compatible both with the serum of the child and with that of the mother, and in any case these women should be regarded as unsuitable as donors. The alternative, where facilities are available, would be to use the washed cells of the mother suspended in fresh plasma or saline (a suggestion I owe to my colleague Dr. H. S. Baar).

It may be argued that it is undesirable to depress bone-marrow function so far as in the cases described. I do not believe this effect to be due to the extra dose of antibody, but attribute it rather to success in raising the blood count substantially above the pre-transfusion level. Aplasia and hypoplasia of the bone marrow are exceedingly rare in icterus gravis and haemolytic anaemia of the newborn, which suggests that the main action of the antibody is exerted on the circulating erythrocytes rather than on the erythron as a whole.

T. W. LLOYD, D.M., M.R.C.P.

Reviews

IMMUNOLOGY

Immunology. By N. P. Sherwood, Ph.D., M.D., F.A.C.P. Second edition. (Pp. 639. 33s.) London: Henry Kimpton.

There are so few modern textbooks on immunity that the publication of a second edition of Sherwood's *Immunology* should be an important event. A good deal of very recent work is in fact quoted, and several new chapters have been introduced, while others have been rearranged and revised. That the book is nevertheless disappointing is due to several factors. A work on this subject should presuppose a sound knowledge of medicine, yet oddly naïve statements occur which on this supposition are superfluous: "Below the ileocecal valve is a lymphoid vestigial organ, the vermiform appendix"; "It is obviously quite serious for the genito-urinary system, heart, central nervous system or lungs to be impaired by acute infections." There is a lack of logical arrangement, seen at its worst in Chapter XV, which, although entitled "Toxins and Antitoxins," deals with, among other subjects, the treatment of pneumonia, sulphonamide chemotherapy, and cerebrospinal fever. In discussing immunization against infections by *Streptococcus pyogenes* the difficulties imposed by the antigenic heterogeneity of this organism are not mentioned. Griffith's work on streptococcus types is mentioned on p. 365, but misdescribed and grossly underrated, and no references to his papers are given. Other omissions and misstatements are fairly numerous, and modern work is sometimes presented in an incoherent form, with too little effort to adjudicate upon it. The author is more successful in tracing the historical development of each aspect of his subject and in laying down well-established principles, and good accounts are given of serological methods, particularly those used in the diagnosis of syphilis.

PSYCHOLOGICAL EFFECTS OF WAR

Psychological Effects of War on Citizen and Soldier. By R. D. Gillespie, M.D. (Pp. 251. 12s.) London: Chapman and Hall. 1942.

One of the few pleasant surprises of the war has been the failure of the predicted epidemic of psychoneuroses to materialize. Dr. R. D. Gillespie's *Psychological Effects of War on Citizen and Soldier* is a valuable and important inquiry on that subject. His opening chapter, on changing concepts in psychoneuroses, is entertaining and rather reminiscent of the first act of *The Doctor's Dilemma:* it emphasizes the willingness of the patient to adopt the doctor's theories, and reminds us that in psychotherapy the relative position of observer and observed is of as much importance as in Einsteinian physics. He goes on to discuss constitutional factors in psychoneuroses, and adds his authority to those who have been forced to adopt the concept of the psychopathic personality. As Osler said, there are some people who will never be able to stand up by themselves. In this respect the earlier psychotherapists were too optimistic. His figures support the view that in the sufferers from war neuroses the trouble started very early in life. That the "broken home" is an important factor is true, but scarcely less important is the inheritance by the patient of genes which contributed to the break. The earliest cultural factor, the family, he concludes, is of great significance in the genesis of psychoneuroses; he discusses both the economic and the constitutional factors, but regards them of much less importance. We like his substitution of "histrionic" for "hysterical": as he says, the hysteric's emotional displays are compensatory for a lack of feeling.

Further consideration of social factors leads him to say: "I suspect that the main preventive of neuroses in doctors and in professional men generally might be summed up in the phrase 'professional attitude.' The individual identifies himself with his job, which becomes a pivotal value for him." In another sphere—namely, shelter life—the appreciation of gregariousness has proved an asset, finding its expression in "We would rather be bombed than bored."

The mediaeval Church condemned *accidie*—i.e., apathy and lethargy—as a deadly sin. For Dr. Gillespie it is a significant symptom in many cases, preceding psychoneuroses on the one hand or antisocial acts on the other; for the skilled and semi-skilled their work is a stabilizing factor, hence the special dangers of unemployment. Unlike some earlier writers the author does not much believe in nervous exhaustion, as if the nervous system were a storage battery which could run down. Genuine exhaustion syndromes, such as were seen after Dunkirk, are rare, and may simulate Parkinsonism.

His opinion that the more slavishly subjected to the will of the State the individual has been the greater the liability to panic or apathy was interestingly confirmed by a German refugee who contrasted the strong inner discipline of the British people with the German, on whom discipline was imposed by authority from without.

It is curious, as he says, that it should have needed a war to bring realization of the truth of old time-worn ideas. The desire of the R.A.F. for anonymity within a community to which one belongs and to which one owes something recalls the attitude of the mediaeval craftsmen. Psychopathology, social science, religious and moral philosophy, agree in asserting that the harmony of human relationships is the highest good. In the thoughts of our younger generation we can discern possibilities for a future civilization. "The common people of England, in their patient endurance, their tolerance, and their sense of fair play, and their readiness to forgive and forget, are such an embodiment as there is anywhere of a national will to that goal." Thus ends a wonderfully heartening book.

THE YEAR BOOK OF EYE, EAR, NOSE AND THROAT, 1942

The 1942 Year Book of the Eye, Ear, Nose and Throat. The Eye: Louis Bothman, M.D. The Ear, Nose and Throat: Samuel J. Crowe, M.D. With the collaboration of Elmer W. Hagens, M.D. (Pp. 640; illustrated. 18s.) Chicago: The Year Book Publishers, Inc.; London: H. K. Lewis and Co.

The 1942 Year Book of the Eye, Ear, Nose and Throat has reappeared with its customary regularity and with undiminished excellence. It remains in the hands of the same pair of editors, Dr. Bothman of Chicago for the eye, and Dr. Crowe of Johns Hopkins of the ear, nose, and throat. The general arrangement is the same as usual, and at the beginning there is a special article by Dr. Bothman on avitaminosis in ophthalmology. There is no special article by Dr. Crowe, but the editorial comments at the end of many of the abstracts form much of the best reading, and no illusions are allowed to remain to a writer whose opinions or conclusions are not considered to be well founded. A good example of this is the comment on the article on oestrogenic implants in treatment of atrophic rhinitis. The importance of the ear in flying, a subject which received special attention in the Year Book for 1941, is not neglected, and the editor has revived two articles by Dr. Arnold Rich on the physiology of the Eustachian tube and its related muscles, and on the innervation of the palatal muscles, dating back to 1920. Modern developments in flying lend a renewed interest to these, and it is probably not generally known that Dr. Rich showed that the sole influence in causing the Eustachian tube to open is the contraction of the tensor palati muscle. A word of appreciation is due to the precision, brevity, and clarity with which the abstractors have performed their task. The Year Book for 1942 is well up to the established standard, though it is inevitable that some of the articles abstracted should be of a repetitive character.

Notes on Books

In producing the eleventh edition of his excellent *Text-Book of Midwifery* Prof. R. W. JOHNSTONE has thoroughly revised the whole volume. A new chapter dealing with radiology in obstetrics has been added and those sections concerned with hyperemesis gravidarum, disproportion, abnormal uterine action, and menstrual pathology have been largely rewritten. The result is a considerable improvement in a book which was previously good. It is published at 25s. by A. and C. Black.

The thirty-seventh edition, for 1942-3, of the *Girls' School Year Book* has been issued by Messrs. H. F. W. Deane and Sons, 31, Museum Street, W.C.1, at 7s. 6d. This is the official book of reference of the Association of Head Mistresses, and, in addition to the usual authoritative information, it gives, so far as is possible, the details of many moves of schools necessitated by the war.

SURGEONS AND SURGERY IN LENINGRAD*

BY

Prof. N. BLINOFF

Leningrad Postgraduate Institute and Blood Transfusion Institute

Leningrad has been besieged for over a year now. The absence of a normal influx of food products (at one time its complete cessation) and the severe bombardment have had their effect on the life of the town and in particular on the work of the surgeons.

The beginning of the siege was heralded by violent air raids and frequent bombardments, as the result of which there were a large number of wounded among the civilian population. It became necessary to open new surgical wards in already existing hospitals and even to create new hospitals. The civilian hospitals were all transformed into military ones and also served as evacuation hospitals. The wounded were admitted straight from the battle front, after first-aid treatment only. The ordinary surgical work of the town had to be done in addition to this.

The deficiency of food and the use of "food substitutes" have changed the type of patients admitted to the hospitals. There were very few patients with acute appendicitis, but the number of cases with perforated gastric ulcer increased more than tenfold as compared with peacetime, and there were very many with strangulated hernia and obstruction. There was an especially large number of cases with coprostasis on account of the faulty and rough food.

Planned surgical operations were not performed; only emergencies were done. The usual principles of treatment of gunshot wounds were observed: excision of the edges of the wound, etc.; the wounds were not sutured. In some clinics a sulphonamide was applied locally. Fractures from gunshot wounds were, as a rule, treated by plaster dressings; extension was seldom applied as the wounded had to be moved from one hospital to another. The method of closed plasters left on for a long period was used widely. In the treatment of shock, blood transfusions, blood replacements, and anti-shock solutions were extensively employed. There was no shortage of blood or of solutions. The Blood Transfusion Institute began scientific and practical work on the method and technique of preparation of different blood-replacing solutions. Some surgeons made a habit of using sphagnum moss for surgical dressings.

As surgeons had for the most part been mobilized, there were not many left to serve the civilian population. Short two-week courses were organized by the Postgraduate Institute and new cadres of surgeons were formed. Several hundred doctors received postgraduate training in that way. Two scientific conferences were held in October and November, 1941, to discuss methods and results: 500 doctors attended and 17 addresses were delivered on a variety of subjects.

Then severe cold weather set in; on account of extensive damage the electricity supply failed in most of the buildings, so work had to be done with the aid of oil-lamps or night-lights. Then the water supply gave out. There was very little coal for central heating and practically no wood, so the temperature of the wards, operating theatres, and dressing stations was very often at freezing-point. Temporary stoves were installed, and by using fences and wooden huts as logs the staffs of the hospitals were able to raise the temperature several degrees above freezing-point. The doctors made their rounds in fur overcoats covered by white gowns, and dressings had to be performed in the wards. The wounded often had to lie in bed fully dressed. The author of this article frequently had to do blood transfusions in a fur coat and a fur hat and keep his hands warm by putting them in warm water. Only in the older hospitals could some of the work be performed in the operating theatres. Later the number of surgical cases diminished abruptly and surgical beds could be filled by medical cases.

The severe cutting down of rations and the intensely cold weather produced a peculiar disease—an alimentary emaciation, which appeared in different forms (oedematous and dry) with a variety of surgical complications such as gangrene of fingers, trophic ulcers, etc. This was followed by avitaminosis. With the advent of the spring surgeons began to get active again. In April, 1942, the first surgical conference of the year was held: 150 civilian and military surgeons were present. After that regular meetings were held every third Sunday. There were several scientific conferences on blood transfusions, trauma, etc. It showed that surgeons were active even during the worst part of the blockade. Most of the debates and meetings were on treatment of different types of wounds, but some of them dealt with other subjects, such as conservation of blood, preparation of dry plasma, and transfusion of sterile homo- and hetero-sera. One meeting was devoted to the question of alimentary emaciation and its treatment by transfusion of blood, plasma, and blood-replacing solutions, and also by the use of blood preparations (ferro-haematogen compound). The biochemical laboratory of the Institute gave a detailed account of the biochemical changes in the blood of emaciated patients. Altogether 22 lectures were given. Two conferences were held at the Traumatological Institute. At the conference held in September, 1942, and organized by the town council's health department 400 surgeons attended. Samarin gave a lecture illustrated by 200 cases on the marked action of sulphonamides on the healing of gunshot wounds. Blinoff dealt with the classification of complications after blood transfusion. Kasakevitch and Nadein summarized their experience of 1,000 cases of gunshot fractures treated by the application of closed plasters. Epstein reported on contractures due to scurvy. A special meeting was devoted to wounds of the chest. In spite of heavy gunfire and bursting bombs during the sittings the hall was full all the time. A conference of nurses also roused great interest. No surgical journals appear in Leningrad now, but surgical literature is printed in pamphlet form.

The experience of Leningrad has shown the great variety of responsibilities of surgeons in civilian hospitals. In spite of the very reduced number of surgeons the whole population was efficiently looked after, as everybody worked with redoubled energy. The second winter in the besieged city does not cause any anxiety to the surgeons of Leningrad. The atrocious conditions of work during the last winter will not recur. The hospitals are now adapted for winter work; they have enough wood for heating purposes, there is a better assortment of drugs and dressing materials. The surgeons will be able to give their help to the population remaining in Leningrad more confidently, because they know that the Red Army will not allow the enemy to enter the town. The Soviet Union is proud of the defenders of Leningrad.

* Cable received by the Anglo-Soviet Medical Council.

VENEREAL DISEASES

Distribution and expansion of treatment facilities, the value of educational work, and the special measures to be taken under Regulation 33B are the subject of the Ministry of Health's latest circular (No. 2727) on venereal diseases. In the first place, the circular states that a local authority should aim at a distribution which provides that no part of its area is more than 10 miles from some treatment facilities, though in present circumstances a treatment centre within this distance may not always be practicable. The services of general practitioners should, therefore, be used as set out in Circular 2226 (*Supplement*, Jan. 4, 1941, p. 2), which provides for the employment of suitably qualified G.P.s who would give treatment at their own surgeries and undertake any necessary training. Secondly, local authorities are urged to make full use of the literature, posters, etc., prepared by the Central Council for Health Education. The council will advise authorities on ways of expanding their own educational arrangements, supply films and literature, and suggest lecturers. In addition, each authority should publish locally regular information about treatment centres and arrange for publication of articles on venereal diseases and their treatment. Finally, the circular refers to the powers conferred on special practitioners and medical officers of health under Regulation 33B (*Journal*, Nov. 21, pp. 611, 616). A memorandum on the Regulation by Sir Wilson Jameson with some notes for the guidance of special practitioners and copies of the Rules and forms are enclosed with the circular, which has been sent to local and port health authorities and their medical officers of health.

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A MEMBER RESIGNS

During the 110 years of its existence the B.M.A. has not been without its critics, and at times the tide of criticism has risen high. Much of this has been unjust and founded on ignorance of what the Association has in actual fact done and of what it intends to do in terms of its declared policy. No organization that does not remain static can avoid making some mistakes in attempting to achieve what it conceives to be its true aims: it is here that the help of the constructive critic is welcome. At a time like the present, when so much is in flux, when so much is being challenged, discontents tend to come to the surface, and in some, but rare, instances so acutely that a doctor may resign his membership of the B.M.A. by way of protest. As it is possible that the expressed grounds for dissatisfaction may be held by others, we feel it may clear the air to publish a recent letter of resignation, and to examine its contents critically in the interests of both the writer and other members who may in part share his views. The letter reads as follows:

"I wish to resign my membership of the Association for the following reasons:

"1. The Association is not representative of the profession and particularly of the younger members. The British Medical Association has made no effort to ensure that members of the profession in the Forces shall have a major say in planning the medical services of the future. In short, the medical officers of the future will have to practise their profession according to the plans of a previous generation, in whom they have little or no confidence.

"2. The British Medical Association, on account of their inability to inspire confidence in the minds of the younger members of the profession, have split the profession into various other groups of medical thought. This is likely to retard rather than advance medical progress and destroy its necessary precursor, the confidence and support of the general public.

"I assume that you will not wish to publish this letter in view of your policy to publish only 'soft letters' which do not conflict with high British Medical Association policy, but should you decide to do so I have no objection."

Let us take his first point—that "the Association is not representative of the profession and particularly of the younger members." It is difficult to see how the Association could be representative of anything but itself, being—as it is—a voluntary organization of medical men. Surely the Association is what its members make it, no more and no less. The men who "built" the B.M.A. constructed a machinery for giving effective expression to the wishes of its members. No policy can become the declared policy of the B.M.A. unless it is accepted by the Annual Representative Meeting—that is, by the representatives elected by the members of the B.M.A. If the members of the Association do not attend their divisional meetings in sufficient numbers, and do not see that their views are put before the A.R.M. through their elected representatives, then who is to blame?

The second point made by our correspondent is that "the British Medical Association has made no effort to ensure that members of the profession in the Forces shall have a major say in planning the medical services of the future. In short, the medical officers of the future will have to practise their profession according to the plans of the previous generation, in whom they have little or no confidence." This is not true. Since the Medical Planning Commission was set up the Association has been very fully aware of the great disadvantage of not having the active participation of men in the Forces in drafting blueprints for the future. And the awareness of this disadvantage has been fully shared by the other bodies appointing to the Commission—the English Royal Colleges, the Royal Scottish Corporations, the Society of Medical Officers of Health, the Faculty of Radiologists, the Medical Women's Federation, and the Parliamentary Medical Committee. So far as the B.M.A. is concerned, it has made constant efforts to obtain the views of serving doctors on the future of medicine, and to this end has successfully urged study groups to invite the attendance at their meetings of serving doctors from neighbouring units. When the matter was debated at the Annual Representative Meeting in September, 1942, the Secretary of the Association recounted how a group of R.A.M.C. men had complained to him that their C.O. had forbidden them to transmit the substance of their discussions on medical planning, and how he had at once successfully taken this matter up with the Director-General of Army Medical Services, asking him to instruct Commands to allow such meetings and the transmission to the B.M.A. of the findings of such meetings. It should nevertheless be borne in mind that not all the younger members of the profession are serving with the Forces, and that those who are do not constitute the majority of the profession. May a centenarian modestly suggest that it is somewhat arrogant for men just beginning to learn the difficulties of their profession to assert that the future is their own special province and that men with experience of the past are thereby incapable of having any ideas on what is to come.

The third criticism is this: "The B.M.A., on account of their inability to inspire confidence in the minds of the younger members of the profession, have split the profession into various other groups of medical thought." Is it not largely the case that some members of the profession take very little interest in the work of the Association to which they belong until something goes wrong which affects them personally? And is it not true that when this happens they look round for a scapegoat—which is conveniently present in the form of "The B.M.A."? The apparent apathy of younger B.M.A. members arises in normal times from many factors which are social and general rather than professional. When a young man qualifies, medicine is for him a matter almost entirely of healing the sick and preventing illness, and when he begins to practise he is preoccupied with matters affecting his career, with the business of earning a living for himself and perhaps for a family. As his responsibilities grow he gradually becomes more aware of himself as one of a group of men earning a living in a certain way, and of the possibilities of altering terms and conditions of work to the advantage of himself and of his patients. And on top of all this some years must elapse before he finds himself with enough leisure to devote to such problems. This state of affairs is not peculiar to the medical profession but is characteristic of modern society. We believe that this state of affairs

is unsound and that all men—and perhaps especially young men—should have leisure in which to reflect upon the kind of professional life they are leading and upon the professional ideas and ideals they hold. But why blame the B.M.A.? And why accuse it of having "split the profession into various other groups of medical thought"? It is self-contradictory to assert that the B.M.A. can formulate views which are not held by its members, because it is the members—and once more reiteration of the fact seems imperative—who do the formulating.

It may be, however, that the feeling behind the criticism is one of dissatisfaction with the conflicting aims of groups of the profession formed for various reasons but certainly not because of any malign activity of the B.M.A. There are differences within the profession, and most unfortunately these are not always based upon intellectual or idealistic conceptions of what the aims of medicine are or should be, but upon a selfish and narrow view of the interests of the particular group to which this or that man belongs. If there is one policy that has been characteristic throughout the whole history of the B.M.A., it is the policy of uniting medical men, whether in their professional interests or in the interests of the health of the people among whom they live. Without labouring the point any further, we would like to quote from an article by Prof. R. S. Aitken in our contemporary[1]: "If we had an integrated medical profession, loyal and pulling together, we could exert an undreamed-of influence for good in politics and economics. . . . 'Idealism!' you say mockingly. 'You will never get doctors to work together like that.' Why not try?" We can only echo his question.

The last sentence of the letter printed above we reproduce with reluctance because of its absurdity. But, absurd though it appears to us, the view has been expressed before, and so it should see the light of day and be finally disposed of. We should have thought, for example, that the publication in this journal of the correspondence condemning the setting up by the B.M.A. of a Planning Commission would once and for all have laid low this odd legend of the crafty censor. Obviously no editor of a journal can be a passive retailer of other men's views, and obviously he must select and reject matter for publication, if for no other reason than that printing space has its limits. If any bias is shown, it is in the direction of giving more space than some would think justifiable to "the other point of view," especially when it is at times intemperately expressed. If anyone doubts the fact of this policy, he should turn to the first three letters on the pasteurization of milk which appeared in the *Journal* of Jan. 9.

Whatever may be the turn of medical events in the near future, the direction they take will be determined in no small measure by the fact of unity or disunity of the doctors of this country. Strong individualism has always been characteristic of British Medicine. If the profession is to be able to resist the imposition on it of a medical service out of harmony with medical ideals, then sectional interests must yield before the common aims all doctors share, and before the common decision on how these aims are to be reached. And the common ground must be sought if the medical profession is to offer the public a service which will make available to every man, woman, and child in the country the complete benefits of medicine in the prevention and cure of disease and in the promotion of health; and if the fundamental ideals of medicine are to be respected and preserved by Government. Such a unity cannot be reached without some sacrifice of personal, sectional, and institutional interests. Are the doctors of this country prepared to do this? The testing time may not be far off.

[1] *Lancet*, 1942, **2**, 235.

HOUSES TO LIVE IN

Those who were brought up in stuffy Victorian houses, large or small, must sometimes wonder how they ever escaped alive. Francis Bacon said that houses were built to live in, not to look at; but many houses of the last century fulfilled neither requirement. The builders paid scant attention to health or aesthetics or even domestic convenience. The neglect of natural lighting and ventilation, and of dryness and warmth, the primitive sanitary arrangements, the likelihood of vermin infestation, the lack of provision for food storage, the unventilated passages, the dark staircases, the basement living rooms must all have had their reflection in the heavier mortality and morbidity rates of the generations which inhabited them. The modern house is better—decidedly better—but it is not as well planned as it might be. And its planning in relation to other houses—as in ribbon development—almost makes the observer doubt whether this country really has a right to be called civilized. At the request of the Central Housing Advisory Committee of the Ministry of Health, the Royal College of Physicians, through its Committee on Social and Preventive Medicine, has drawn up a memorandum on "Design of Dwelling Houses," having in mind the small house, and principally, though not exclusively, the house built under a local authority housing scheme.

Health considerations enter even into the disposition of rooms in a house in relation to one another. The parlour or "best room" in the small house has no longer the mortuary air which it once had, but this memorandum proposes its abandonment altogether. It is a room only used on special occasions, difficult to keep warm, and apt to become damp and unwholesome. It would be better to add to the size of the living room than to have two smaller rooms one of which is rarely used. Another house convention is the "second" bedroom, presumably where the children sleep. The College, intent on scotching the foolish and unhealthy doctrine that children require less air space than adults, urges that the second should be at least as large as the principal bedroom occupied by the parents. Three bedrooms are regarded as the minimum for families of between two and five persons. Another suggestion is that the local authority should reject any plan for a new house unless it includes a bath with proper arrangements for a piped supply of hot and cold water. It is thought advantageous to place the bath and the water-closet in the same room, for the water-closet is then more likely to be kept in a wholesome condition, and also people are thereby encouraged to wash their hands after using the toilet. The combined bathroom and water-closet should be kept apart from, and not communicate directly with, any public room or bedroom. The kitchen-scullery should be the housewife's workshop, fitted solely for her convenience, and not used as a second living room. The food store, something better than a mere cupboard, should have a northerly aspect, and its external opening should be protected by wire gauze. Perhaps after the war there will be refrigerators for all. Something will have to be done about the dustbin, which is a possible source of contamination as well as an unsightly tail-end to the domestic procession. In block dwellings the "shute" system with movable container is preferable. The College does not come down wholly against the coal fire. It considers it desirable, partly on psychological grounds, that there should be at least one open fireplace burning coal or smokeless fuel.

Up to now houses have generally been constructed for occupation by the married couple with a family, and

any differentiation has been on economic grounds. It is useful that housing authorities and private builders should be reminded that houses need to be adapted to the social condition of the prospective tenant as distinct from his purse. There is, for example, the question of houses for the old, which is becoming more important with an ageing population. It is calculated that by 1950 about one person in eight will be over 65. Many old people, of course, are able to live comfortably with relatives; some have to be transferred, on account of infirmity, to institutions; but many require houses, and the College suggests that every housing scheme should include a number of houses suitable for old persons. These would not be of the almshouse type but possibly bungalows, in the construction of which the lessened agility of the old, their liability to accident, and their simpler needs would be kept in mind. When stress is laid, as it is in this memorandum, on the helplessness of old people and the difficulty they have in maintaining personal and domestic cleanliness it is forgotten that the septuagenarian of to-day is a much more lively person than his frequently bedridden predecessor of fifty years ago. He has lived through a generation of health instruction in one form or another; the force of a healthier habit will not be easily broken even by increasing infirmity; moreover, the complaints which attend old age seem now to be less disabling. Nevertheless, it is a good thing that there should be some special houses for the old.

Similar considerations apply to the housing of the tuberculous and the crippled. The College believes it to be a sound principle not to segregate the tuberculous in colonies, but to have them in the general community, in houses in which at any rate one bedroom is favourably situated as regards access of sunlight and fresh air, and has special windows opening more widely than the usual pattern. There is also the question of the mentally defective, the dirty, and the anti-social. The suggestion is made that certain houses of a rather bleak kind should be designed for the worst type of undesirable tenant, that these houses should include such features as concrete floors, impermeable walls, and, so far as may be, indestructible fittings, and that they should be open to rigid inspection by competent officers of the local authority. Such a system has been carried out in Holland, where these tenants on good behaviour are permitted to "graduate" to houses of a better type.

Flats will continue to be the choice or the necessity of large numbers of people. The College favours a three-story house consisting of a two-story tenement for a family and a single-story flat on the top floor for childless persons. But whatever the type of dwelling, just as no man liveth to himself, so no house is built to itself. The sense of incompleteness which clings about many new housing estates is the lack of community basis. Town and country planning hardly comes within the scope of this memorandum, but it does urge that all housing estates should be grouped around certain centres of public service, education, and recreation. Among these is mentioned a health centre, not in the wider sense in which that term has been used in recent discussions, but the assembly under one roof of all the services of preventive medicine. In this memorandum—which is not the first of its kind which the College has issued: there was a very useful one in 1936 on domestic heating by gas—an important contribution has been made to a major problem, and we hope that its counsels will be duly considered in the rehousing to which the Government intends to give high priority after the war. For the College to give a lead in this important matter of housing in relation to individual health and social welfare is an encouraging sign of the times.

STATISTICS OF VENEREAL DISEASE

During recent discussions on venereal disease various widely differing estimates of the number of patients defaulting during treatment have been made. That such large differences can arise emphasizes the paucity of data on what is an important social and health problem. The deaths resulting from venereal disease are classified and tabulated in the Registrar-General's Statistical Review, but national statistics relating to the incidence of venereal disease are scanty. The number of cases dealt with at treatment centres in England is given in the annual report of the Ministry of Health. The number of cases dealt with for the first time at centres in England and Wales is stated in the annual report of the Chief Medical Officer in slightly greater detail, and totals are given which include and exclude cases transferred from centre to centre and those returned with the same infection after being struck off the books in previous years. These form a considerable number: in 1938 the total number of cases by the first method was 60,800 and by the second 49,415. The deductions that can be made from the statistics published in these reports are that the number of cases of syphilis had been steadily declining in recent years, whilst the number of cases of gonorrhoea fluctuated around a fairly constant level; the ratio of male to female cases was 3 : 2 for syphilis and almost 4 : 1 for gonorrhoea. No further information is published for the country as a whole, although apparently it was available, because in 1936 the Minister of Health was reported[1] as stating: "So far as discharge and tests of cure after treatment were concerned there was an improvement, for in 1925 the percentage was 12.9, whilst in 1935 the figure had risen to 17.5." No indication of the fate of the remaining 82.5% was given. Various speculations on the history of these patients can be made; the easiest guess is that they were not cured and were either incurable or defaulters, but such a conclusion seems too obvious to be true.

Although no information is available from national figures, the reports of the medical officers of local authorities indicate the approximate position. These reports, in which the administrative aspect is naturally important, tabulate the statistics in varying ways and detail. The numbers of cases discharged after completion of treatment and final tests of cure during 1938, which was the last year for which detailed reports are readily available, in the cities of Liverpool, Manchester, Birmingham, and Glasgow were 17.4, 19.2, 21.2, and 20.2% respectively of the total cases treated during the year. The percentages of defaulters were 18.8, 23.5, 15.7, and 26.4. The defaulters can be divided into two classes: (1) those who ceased to attend before completion of treatment (known to be in an infectious condition and responsible for the spread of much disease); and (2) those who ceased to attend after completion of treatment but before final tests of cure. In the former 15.5, 16.2, 10.7, and 16.0% of the total cases defaulted; and in the latter, 3.3, 7.3, 5.0, and 10.4%. Those transferred to other centres amounted to 19.5, 6.9, 8.5, and 12.7%, and those remaining under treatment at the end of the year were 44.3, 50.4, 54.7, and 40.7% of the total cases. If these local figures can be taken as giving a broad picture of the conditions within the country we should expect, for the whole country, the percentage transferred to other treatment centres to be much lower, as only those transferred to private practitioners would appear in this group. The percentage of defaulters might be higher, because in the local returns the transferred cases appear in the denominator. These cases are, in the four cities, more numerous than the entrants by transfer, and it would

[1] *Hlth. Emp.*, Sept., 1936, **11**, 231.

not be safe to make the assumption that there were no defaulters among transferred patients.

If adequate national statistics had been made available confusion as to the percentage of defaulters would not have arisen. It is possible that with a percentage of 17.5 patients who completed treatment and tests of cure the defaulter rate was in the neighbourhood of 25–30%, and almost three-quarters of those who defaulted were known to be still in an infectious condition. About half the patients were probably still under treatment at the end of the year.

OPERATION FOR THE ORCHITIS OF MUMPS

The orchitis caused by the virus of mumps may be as acute as the epididymo-orchitis caused by the gonococcus. Within a few hours the testis swells to three or four times its normal size and becomes so acutely sensitive that the patient cannot bear to have it touched. The infection is often associated with a high temperature and sometimes even with delirium. What is still more important is that the acute infection is followed in 54.7% of cases by testicular atrophy due to cell necrosis brought about by the great rise in intratesticular pressure. In 1864 Henry Smith advocated that an acute epididymitis due to gonorrhoea should be treated by multiple puncture of the tunica albuginea. A. Wesselhoeft and S. N. Vose[1] recommend that the same method should be applied to the severe orchitis in mumps. It would indeed seem that relief of the increased intratesticular pressure is more necessary in the case of mumps than in that of gonorrhoea, because the risk of subsequent atrophy in the former case is far greater. The writers emphasize the necessity for intervention before the inflammatory process has reached its peak. In the 9 cases in which they operated sufficiently early the testicle recovered without undergoing subsequent atrophy. In the one instance in which incision was postponed some degree of atrophy followed. For multiple punctures they substitute complete exposure of the swollen organ and a longitudinal, or sometimes a crucial, incision of the tunica albuginea. The operation not only affords an immediate relief of pain but also brings about a rapid fall in the temperature. It is only necessary in the fulminating type of case, which constituted 10 out of the total of 24 cases reported upon. Atrophy is only likely to follow the very acute infections, and the less severe cases need not be subjected to operation.

DIAGNOSIS OF PERIPHERAL NERVE INJURIES

In all medical and surgical practice good treatment is based upon careful investigation and accurate diagnosis. In this war many special problems come to the less experienced in unusual numbers. Among such problems, requiring the most careful investigation in early treatment, are injuries to peripheral nerves, and for this reason alone the valuable pamphlet[2] issued by the Nerve Injuries Committee of the M.R.C. is to be warmly welcomed. This excellently illustrated atlas should prove of great help. It comprises mainly a series of excellent photographs which demonstrate one method of testing the action of every important muscle of each limb. The nerves are taken separately, and the muscles supplied are shown in the order of the origin of their branches from the parent trunk, an arrangement which will be of use in determining the level of the lesion. In the legends the spinal segments chiefly responsible are indicated, and thus further help is given in the elucidation of radicular injuries. Sensory distributions and their variations are represented in line drawings of typical lesions at different levels. With the atlas itself there is little to criticize, it is so good. Among minor points that might be improved is the differentiation of the action of abductor pollicis longus from that of the abductor brevis. It would perhaps have been better if it could have been made clear that during the test for quadriceps action the heel is completely raised off the examination table. The illustrations Nos. 47 and 48 dealing with the action of the tibialis anterior and extensor digitorum longus have been misplaced. The legend 47 refers to 48, and vice versa. The introduction, however, is open to serious criticism, especially because the pamphlet is intended for the inexperienced. There is much obscurity, and even inaccuracy, in the statement concerning the action of a muscle as prime mover, fixator, synergist, and antagonist. The use of the flexor carpi ulnaris as an example is unfortunate. Its action as a prime mover is to flex and adduct the wrist. In the movement of flexion of the wrist it acts as a synergist with flexor carpi radialis. The flexor carpi ulnaris is an *antagonist* (with radialis) "when the wrist is actively extended," and a *synergist* "when the fingers, but not the wrist, are extended." The booklet describes these actions the other way round, and so the inexperienced reader will be led astray. The valuable system of recording the strength of muscular action used by most orthopaedic surgeons for charting paralysis in anterior poliomyelitis is mentioned, but it is a pity that the method of carrying out the test for each of the five gradings mentioned was not described for a representative muscle group. There is paper left bare in the pamphlet, and without such description the reference to the system is not very helpful.

[1] *New Engl. J. Med.*, 1942, **287**, 227.
[2] M.R.C. War Memorandum No. 7. H.M.S.O., 1942, (2s.)

DR. BOYD'S GIFT TO MANCHESTER

The late Dr. Robert Boyd, formerly Chairman of the Manchester Division of the Association, concerning whom an obituary notice appeared in our issue of January 23, made a most generous bequest to the Association for the benefit of his professional colleagues in the Manchester area. The gross value of Dr. Boyd's estate is in the region of £100,000. Subject to certain life interests, the residue of the estate is left to the British Medical Association "to be applied as to as well the capital as the income thereof for the purpose of endowing or contributing to the endowment of a British Medical Association House in the district of Manchester for the benefit and use of all qualified and registered doctors practising in Manchester and the surrounding districts, the power of making regulations for the conduct and use and the powers of managing and administering the said House to be vested in the Governing Committee or Body for the time being of the Manchester Division of the British Medical Association."

"B.M.A. House, Manchester," will be a fitting memorial to Dr. Boyd in his own city. His great gift will, we hope, serve as an inspiration to others, singly or collectively, to establish "B.M.A. Houses" in the principal regions of the country, so that each large grouping at the periphery may have a local habitation and a name.

The Central Council for Health Education has arranged for a whole-day conference on Friday, Feb. 26, on "Health Education and the Venereal Diseases." The morning session, from 11 a.m. to 1 p.m., will be devoted to the general problem and will be opened by the Minister of Health; he will be followed by the Archbishop of Canterbury, President of the C.C.H.E. Afternoon speakers will include Lord Winster, Dr. Thomas Garland, and Dr. Hamilton Wilkie.

ASPECTS OF WAR MEDICINE IN THE R.A.F.

BY

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The first duty of the Service medical officer in war is to maintain the effective strength of his unit by every means in his power. This duty precedes his individual obligations to his patients even as those obligations precede his personal gain; moreover, it charges the medical officer of the Royal Air Force with a threefold responsibility. He must be a sound, responsible, and decisive clinician in both medicine and surgery; he must show an imaginative appreciation of the physiology and psychology of flying; and he must always concern himself not only with the physical welfare of his men but above all with their morale. Failure to recognize this underlies the fallacy that much of a junior M.O.'s work is exasperatingly trivial, whereas an intelligent grasp of this aspect of war medicine enables him to render unique and invaluable service.

Sick Parade

The morning sick parade is one example. On the average station of the Royal Air Force not more than 15 men and 3 or 4 women are likely to report sick on any normal morning. Yet even of that handful several may appear and reappear with melancholy and improbable tales of woe. The daily sick list admits of an immediate division: one section being a minute proportion, constantly changing, of the vast healthy majority who happen to have something wrong; the other a large and more consistent selection from the minority of feeble spirits and faint-hearts—some martyrs to a consuming self-pity, some hopeful scroungers, some simply malingerers, all essentially indifferent to the challenge of this war and unable to accept its reality. Their symptoms, as an escape from disagreeable duties, concern them far more than the purpose of those duties or the need for their performance. Even as neuropaths they are clinically insignificant—trivial in everything but the waste of man-power they represent and the sick-hearted spirit they display. Yet unless the M.O. succeeds with them their numbers may increase until the sick parade itself swells and the efficiency of the station begins to decline. Here the M.O.'s function is mainly interpretative. From the resources of his own conviction he can give them insight not only into the shallow inadequacy of their symptoms but also into the nature of their obligations. Simply, vividly, in a few words he can make them see that sick quarters exist to give help and encouragement but not sanctuary, to maintain or restore fitness rather than to excuse on grounds of ill-health. The reality of war needs emphasizing to many whose nearest approach to it was the sound of a bomb "in civvy street"; but the explanation must be crisp and vital, its implications focused on the job of each individual. After this "pep-talk" the relations of the patient and the M.O. are on firmer ground, a placebo if indicated becomes a tonic, and resolve may well be rekindled; without it, rebuke, no matter how just, may fail.

It is easy for an unreflective tradesman in the R.A.F. to imagine that he will never be called upon to fight for his life or his unit with his hands or a gun. That is the business of the Army—or the "Ground Defence," as the R.A.F. Regiment was previously called. He feels no thirst for battle; he is a rigger or a flight-mechanic, not a soldier: so runs his mind. So when he is included in the Emergency Reserve or sent on a "backers-up" course he is tempted to react by reporting sick. This is not his trade, not what he joined the R.A.F. to do; if he'd wanted to be a ruddy soldier he could have waited until he was called up for the Army.

At this point the M.O., faced by a querulous patient with his grievance thinly disguised as a vague ache or "terrible pains," has a chance once and for all to prise the scales from those unwilling eyes. Even the most skilled artisan is useless with a bayonet through his belly; and we may all share that fate unless each can help to avert it by his own efforts, as well as practise his specialty. The man who requests a chit excusing him from elementary combatant training may justly be asked to whom he intends to present it: to the German paratrooper who is about to kill him? Does he suppose that the trouble of learning a soldier's job when he already has a trade warrants its evasion, even in his own interests? Might it not perhaps be better to learn all he can about how to fight on the ground? The enemy forces who will attack aerodromes will be the best-trained and best-equipped troops available. When they arrive, will ignorance then be bliss? The airmen who were massacred on the aerodromes at Crete learnt too late the answer to that question.

By this time the trivial ailment occupies a less prominent place in the airman's mind. Such essentially belligerent medicine is an inevitable daily routine with the Service M.O.

The M.O.'s Great Responsibility

But it is in his relations with his air crews that the highest degree of responsibility rests upon the M.O. He must be their friend, their adviser, and sometimes to the younger members of his squadron their elder brother. He must inspire their respect as a man as well as their confidence as a doctor. Apart from the preservation of their health, in itself a considerable undertaking, he must ensure that they fully understand the essentials of first aid in the air, the use of oxygen, the effect of pressure changes at altitude on their bodies, and the relevant facts about venereal disease.

To give his advice about first aid in the air a background of experience, to widen his own horizon, and to enter as completely as he can into the realities of their existence, he should take every available opportunity of flying with the crews in the squadron aircraft. If he is keen, willing, and unassuming about this he will not find such opportunities hard to secure. The familiarity that flying by day and night will give him with the problems of space and stowage in twin- or four-engined aircraft, the position and accessibility of first-aid outfits, and the difficulties of movement in full flying kit will sooner or later stand him in good stead: for after a crash with bombs on board, followed by fire—one of the most serious and urgent disasters that confront an M.O.—there is a space of minutes only in which to effect rescues before the bombs explode. The use which can be made of this period depends on the M.O.'s knowledge of the crews' positions in the aircraft and their ways of escape. The respect and confidence that an M.O.'s performance in such crises will command among the flying men in his squadron, coupled with the companionship gained from having had him fly with them, will equip him to fulfil his surpreme obligation—the responsibility that he shares with the squadron and flight commanders for the maintenance of air crews' morale.

This is not the place to discuss the details of that responsibility or the problems of its fulfilment. It is enough here to say that the guidance and instruction so freely proffered to the young M.O. by the R.A.F. Medical Service are positive and intellectually acceptable; once understood, enriched by experience, and applied with courage, imagination, and common sense, they increase substantially his value as a doctor. His task is not easy, nor is it always pleasant. Decision and responsibility rest more heavily and more individually upon him than ever they did in his days as a house-officer. But in the indispensability of this special service lies its merit and its reward.

Another feature of the M.O.'s life is general medical instruction. Apart from his lectures to air crews, he is responsible for the training of his staff in sick quarters and for the guidance of airmen in simple hygiene and first aid. Under present conditions it is not practicable to give all the airmen on a station an extended course of medical lectures. Postings overseas, courses, and the usual changes of station personnel preclude this even if it were desirable. But it should be possible to tell airmen all that they need to know about first aid in one lecture, of which the recognition and treatment of shock are the keystone. Haemorrhage, fractures, burns, penetrating wounds, and unconsciousness can all be introduced and related to the central theme, in diagnosis and treatment. The men will probably then know at least enough to do as little as possible to a gravely injured man without forsaking common sense for rule of thumb. The idea that first aid is a special subject with a literature and academic tradition of its own has always seemed to me to be a dangerous presumption. A course of lectures with apparently detailed and separate instructions for various types of injury may rob men of their precious

natural humility in the presence of physical disaster without really equipping them to relieve it. It is not in the patient's interest that the partly trained should feel a surgical confidence.

Training of Medical Orderlies

The training of medical orderlies calls for a different approach. They make up a small but essential section of the station, directly under the command of the M.O. They are recruited largely from completely untrained and inexperienced civilians, and, apart from an initial six-weeks course, are wholly dependent upon the M.O. for their instruction, the interpretation of their duties, and the inspiration to perform them to the utmost of their ability. He in turn is dependent upon their loyalty, efficiency, and enthusiasm for the smooth running of his department and its reliability under all conditions; for he will have no highly trained sisters or nurses to appreciate the immediate medical implications of an emergency or anticipate his needs in a time of stress. His staff will reflect the value of his teaching and his example; it behoves him always to remember that. The very obligation is stimulating: to teach as well as to treat, to explain as well as to diagnose. This involves both lectures and demonstrations. In practice it is a sound plan to include teaching rounds in the ward whenever there are suitable cases, as this not only stimulates interest and accustoms orderlies to observation at the bedside but also gives them a feeling of studentship which they enjoy and which fosters discipline and loyalty to their officer.

He must display leadership and a capacity for organization as well as professional ability, for the grouping and handling of medical resources in men and equipment are also among his responsibilities. Practical schemes for dealing with casualties from land or air attacks, from crashes, or from aircraft returned with wounded on board demand constant practice and revision. Simplicity cannot be too highly prized in such schemes. Under the impact of extreme crisis—for example, collision of two bomber aircraft on a runway while landing at night, with perhaps eight seriously injured men in urgent need of trained attention—the simple, easily remembered routine with its scope for elasticity and improvisation under the immediate orders of the M.O. will steady the orderlies, whereas a more elaborate organization delegating complex individual duties to each member of the staff may break down.

Every orderly can, however, be trained in the essentials and rationale of anti-shock treatment, including the administration of morphine by tubunic ampoules, in the control of haemorrhage, the utmost gentleness in handling fractures, the preparation of a trolley for intravenous injection or anaesthesia, and the technique of sterilizing instruments and assisting at minor surgical operations. Above all they can be imbued with enthusiasm and a feeling of confidence and pride in their performance as a team under the guidance and leadership of their M.O.s.

Conclusion

Because of all this the M.O.'s job in the R.A.F. is an extremely important and responsible one. His knowledge of general medicine and surgery is by no means doomed to decline on a station; rather will he gain a breadth and background to his judgment, increased by the necessity for independent action and decision in many cases. He will encounter the special psychological problems of modern flying, and may gain personal experience of flight in modern operational aircraft. No matter how young he is, his position in the community of his brother officers is established; to them he is "the Doc."—to be consulted at all times and in all places. He is expected to advise his commanding officer on all matters relating to the hygiene and health of the unit—advice to which a good commanding officer attaches considerable importance and upon which he acts.

To the unit as a whole, the M.O.'s capabilities and attitude to his job are equally important. Service life has meant changes and sacrifices for them far more fundamental than those he has to accept—the diversion of his career and the severance, at any rate for some time, of his hospital connexions. He is bound still to follow his vocation; the least he can do is to display the utmost energy and enthusiasm for its every aspect.

The aspects that have been stressed here are perhaps less obvious than the more material and generally recognized responsibilities for the care of the sick and injured, the supervision of sanitation, and the keeping of medical records. But they are no less exacting; moreover, they are vitally important, because indifferent morale can rot the fittest body of men. The influence of a medical officer on the morale of his unit—the inescapable obligation for its upkeep that he shares with his senior officers—inspires with an Aesculapian touch his first duty: to maintain the effective strength of his unit by every means in his power.

AN INVESTIGATION INTO THE STANDARD OF MILK SUPPLIED TO CHILDREN

BY

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The British Paediatric Association recently organized an inquiry into the standard of milk supplied to children throughout the country. It is felt that the findings would be of interest to the medical profession and should be made more widely known. This article is based on information so received from eight separate areas in England, Wales, and Scotland, representing a London borough, a Scottish city, a West of England city, a South Wales urban area and a South Wales rural area, two Northern industrial towns, and a Midland county. As the reports received were in the nature of confidential comments the areas are subsequently designated by the initial letters A to H.

Results of Questionaries

A questionary was sent to each area and the following is a summary of the replies received:

1. Is there any Evidence of an Increase in Bovine Tuberculosis in Children Since the War?

Area	Non-pulmonary Tuberculosis			
	1938	1939	1940	1941
A*	—	—	—	—
B†	120	126	107	143
C	30	36	29	54
D	No increase			
E	" "			
F	" "			
G	—	527	—	664
H	No increase			

* Double the number of cases of meningitis in 1938 as compared with 1941.
† From P.M. material: 1935–9, 15·7% primary abdominal; 1940–1, 58·3% primary abdominal.

Accurate evidence on this point has been difficult to obtain owing to the shifting population. Some observers report a clinical impression of an increase, especially of tuberculous glands in the neck.

2. Is there any Evidence of an Increase in Tuberculous Cattle Since the War?

Area A.—Samples of milk containing tubercle bacilli: 1938, 8%; 1940, 5·3%; 1941, 6%
Areas B, C, and D.—No evidence
Area E.—Cases dealt with by Ministry of Agriculture and Fisheries: 1939, 267; 1940, 192; 1941, 164
" F.—No evidence
" G.—Samples of milk containing tubercle bacilli: 1939, 9·4%; 1940, 6·3%; 1941, 6·0%
" H.—No evidence

Evidence on this point has been difficult to collect, as tuberculin testing has been reduced, slaughterhouse statistics are no longer reliable owing to different allocation of carcases by the Ministry of Food, and there is a shortage of inspectors.

3. Is there any Evidence of an Increase in Milk-borne Infections, other than Tuberculosis, Since the War?

Area A.—No evidence
" B.—Increase in notification of undulant fever
Areas C, D, and E.—No evidence
Area F.—? Increase in gastro-enteritis due to milk?
Areas G and H.—No evidence

In a personal communication Prof. G. S. Wilson of the Emergency Public Health Laboratory Service states that in the area covered by that service there have been two small outbreaks of undulant fever, three outbreaks of dysentery due to the Sonne organism (one of them involving over 1,000 people), two outbreaks of diphtheria, and one of typhoid fever, all due

to the use of raw milk, and one of paratyphoid fever probably due to its use.

4. What Percentage of Milk is Pasteurized?

Area A.—70 to 75% sold as pasteurized	Area E.—60%
„ B.—40%—not all sold as such	„ F.—90%—only 50% sold as such
„ C.—30%	„ G.—80%
„ D.—65%	„ H.—40%

Several areas comment on two points: first, that not all pasteurized milk is sold as such; and, secondly, that any heat-treated milk is often erroneously referred to as pasteurized.

5. What Percentage of Milk is Sold Ungraded?

Area A.—12 to 15%	Area E.—?
„ B.—70%	„ F.—48%
„ C.—50%	„ G.—2 to 3%
„ D.—32%	„ H.—40%

6. Has the Bacterial Content of Milk Changed Since the War?

Area A.—Higher bacterial content. Pre-war, 10% pasteurized milk failed to pass test; post-war, as high as 50% at times
„ B.—Higher bacterial content. One district reports samples over 100,000 orgs./c.cm.: 1938, 11%; 1939, 19%; first half 1940, 35%
„ C.—Higher bacterial content. One district reports: "Still as bad as ever"
„ D.—Higher bacterial content
„ E.—25% samples of "accredited" milk unsatisfactory
„ F.—Higher bacterial content
„ G.—No change
„ H.—Higher bacterial content

7. What Standard of Milk is Supplied to Nursery Schools and Day Nurseries?

Area A.—Pasteurized	Area E.—Accredited or pasteurized
„ B.—Variable	„ F.—Pasteurized
„ C.— „	„ G.— „
„ D.—Pasteurized	„ H.— „

8. What Standard of Milk is Supplied to Schools?

Area A.—Pasteurized	Area E.—Accredited or pasteurized
„ B.— „	„ F.—Pasteurized
„ C.—Variable	„ G.— „
„ D.—Pasteurized	„ H.—Variable

9. What Standard of Milk is Supplied to Children's Hospitals?

Area A.—Pasteurized or T.T.	Area E.—?
„ B.—Variable	„ F.—Pasteurized
„ C.—Ungraded	„ G.—T.T.
„ D.—T.T.	„ H.—Pasteurized

10. Do Welfare Centres Mainly Recommend Liquid or Dried Milk?

Area A.—Liquid	Area E.—Liquid and dried
„ B.—Dried	„ F.—Dried
„ C.— „	„ G.— „
„ D.— „	„ H.— „

11. What Proportion of National Dried Milk is Used?

Area A.—11%	Area E.—Hardly any
„ B.—20%	„ F.—55%
„ C.—30%	„ G.—Hardly any
„ D.—High proportion	„ H.—90%

12. Are You Satisfied with the Standard of Milk in Your Area?

Area A.—No	Area F.—Only one sample of pasteurized milk in 1942 failed to pass standard
„ B.—No	„ G.—No—so long as 6% samples contain tubercle bacilli
„ C.—No	„ H.—No
„ D.—Yes	
„ E.—No	

13. What Standard of Milk do you Recommend?

Area A.—Dried milk for infants; pasteurized for older children
„ B.—Dried milk up to 9 to 12 months old; pasteurized for older children
„ C.—Dried milk for infants; pasteurized for older children
„ D.—Good quality milk from a herd free from tuberculosis. All fresh milk to be scalded
„ E.—Dried milk or pasteurized
„ F.—Dried milk up to 12 to 18 months old; pasteurized for older children
„ G.—Dried milk for infants; pasteurized for older children
„ H.—T.T. and bacteriologically clean

Comments

In a field survey of this kind it has not been possible to obtain accurate figures, but, representing as it does the findings of paediatricians in their respective areas, it is disquieting to note that so many are dissatisfied with their milk supply. Comments received from medical officers of health also suggest that they too are concerned about the problem, with little if any power to correct matters. It would, however, seem possible for health authorities at least to ensure a safe milk supply for children in their nursery schools, day nurseries, schools, and hospitals.

The fact that certain areas report 6% samples of raw milk containing tubercle bacilli is a reflection on our cattle supervision, but it must not be forgotten that, although tuberculosis is perhaps the most serious of milk-borne infections, it is by no means the only one, and measures such as tuberculin testing of herds deal with only half the problem, and not too well with that half. There is no alternative to pasteurization, which alone can prevent all milk-borne infections.

The problem of efficient pasteurization is many-sided, and therein lie its difficulties. One medical officer of health reports that of three firms selling pasteurized milk in his area only one, as judged by the phosphatase test, is satisfactory, yet little attempt is made to bring offenders to book. If milk below the specified fat content is sold fines are readily imposed, but the selling of milk improperly pasteurized is too often ignored by legal, health, and sanitary authorities alike. Perhaps the commonest faults in pasteurization are inefficient cooling of milk at the farms and delay in transport to the pasteurization plants, both accentuated by wartime conditions. This can only be corrected by proper inspection by responsible authorities. To examine the plant only is not enough; if milk is to be pasteurized it must be of a sufficiently high standard of bacterial cleanliness, otherwise rapid souring may take place. As Wilson (*The Pasteurization of Milk*, 1942, London) says, "Though it may make a dangerous milk safe, pasteurization can never make a dirty milk clean."

That so little has been done by responsible authorities, including the Government, to tackle the problem of safe milk in spite of urgent recommendations by such bodies as the B.M.A., the Royal College of Physicians, and more recently the M.R.C. Committee on Tuberculosis in Wartime, is an indictment on our preventive-medicine policy. The M.R.C. Report sums up the situation by saying: "If all milk for human consumption were pasteurized in licensed plants under adequate supervision, it is no exaggeration to say that tuberculosis of bovine origin would be eliminated." Why, then, cannot this be done, with the example of the U.S.A. and Canada before us? In a personal communication Dr. Enid Williams says that in a small number of cases of tuberculous meningitis which she has investigated 50% were found to be due to the bovine bacillus. Here we have a fatal disease untouched by clinical therapy, yet preventable in a large proportion of cases by safe milk. There is no other field in which preventive medicine can hope to achieve such dramatic results. If the British Paediatric Association's findings can help to stimulate the powers that be to legislate for a safe milk it will have served its purpose.

Summary

The following recommendations have been made by the British Paediatric Association as the result of the above investigations, and have been forwarded to appropriate authorities:

1. All milk to be efficiently pasteurized. Increased inspection of cooling facilities on farms and pasteurization technique is essential.

2. These investigations revealed that the safeguards to ensure that pasteurization is efficient are not reliable, and it is recommended that steps be taken to remedy this state of affairs.

3. Until all milk is efficiently pasteurized the public should be instructed to scald all liquid milk for children up to 5 years of age, but preferably dried milk should be used for infants.

The services of the family doctor are to be called on as part of the Ministry of Health's campaign for the immunization of all children against diphtheria. The Ministry (Circular 2753) points out that, in response to its first appeal in the early part of last year, local authorities concentrated on school children and those of pre-school age attending maternity and child welfare centres, as the centres were the obvious places for immunization of the child population. But the time has come, the circular continues, to find out just which children in an area are not yet immunized, and for the local authority to make whatever arrangements are necessary to deal with the position. If for any reason a child cannot attend a centre, immunization should be carried out at home by the family doctor. Doctors should be asked to undertake this work, the local authorities informing them at the same time of the fee they are prepared to pay for the service. The prophylactic will be supplied in suitable containers free of cost. It is pointed out that this domiciliary immunization should not be regarded as precluding doctors from being employed at centres, but as supplementary to their work there.

Reports of Societies

RADIOLOGICAL DIAGNOSIS OF DISPROPORTION

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on January 15, Dame LOUISE MCILROY presiding, the subject of discussion was the radiological diagnosis of disproportion.

Prof. J. CHASSAR MOIR said that the question of fit or misfit, adjustment or maladjustment, was ever present in obstetrics, and radiology would solve some of the problems which remained obscure on clinical examination. Three radiological views of the pelvis were desirable, though with careful clinical examination one or even two of these might be unnecessary in a given case. The lateral view was by far the most important in any single examination. He proceeded to speak from an experience of 410 obstetric cases examined radiologically. This had been done in the later weeks of pregnancy, partly because he was reluctant to subject the young embryo to mass radiation, and partly because it was in the later stages that the foetal head could be better defined.

With regard to the value of cephalometry he found on an analysis of 82 cases that in 75 the forecast was correct to within 1 mm. over and 3 mm. below the stated figure. In 2 cases the head was less than the stated figure by more than 3 mm., and in 5 it exceeded the stated figure by more than 1 mm., but these were all cases of abnormally shaped heads. In approximately 90% of cases radiography gave a useful estimate of the size of the baby's head. He believed the growth of the foetal head to be from 1 to 1.5 mm. per week during the last weeks of pregnancy; this was borne out by measurements of the rate of growth after birth. The most important of the measurements in radiological diagnosis was the conjugate measurement of the brim. The pelvic brim should not be regarded as a kind of sieve, and it should not be thought that any head which could pass through the brim would also negotiate the lower reaches of the pelvis.

Maternity hospitals were increasingly asked to provide facilities for normal confinements, but there were also women who elected to be, but should not be, confined at home. It might be said that this should not happen if ante-natal examination were properly performed, but at present there were not enough ante-natal examiners. Radiology could differentiate between those patients in whom delivery would be easy and spontaneous and those in whom difficulty might arise. The time might come when all women entering their names for domiciliary midwifery would be radiologically examined as a routine. Patients who had an unreasonable fear of obstetric difficulty might be reassured by a radiological examination. Obstetric radiology had been criticized on the ground that it emphasized certain features of the birth process and ignored others which also played a major part in deciding the course of labour. But disproportion was one of the greatest causes of difficulty at birth, and it was here that radiological examination had its use. Some feared that the use of radiology would lead to unnecessary surgical intervention, and this was possible when bad radiology was combined with bad obstetrics; but a similar misgiving might obtain when radiology was used in examination of fractures and other conditions. Radiology had oftener influenced him against Caesarean section than in its favour. The obstetrician's clinical judgment was improved by the increased knowledge of the birth mechanism which radiology afforded. But it was not a short cut to the solution of every problem of birth mechanics. Some people endowed radiological reports with an infallibility which was quite mistaken, to the disadvantage of obstetrics and radiology alike. In its proper place obstetric radiology was a valuable adjunct to clinical methods.

Dr. E. ROHAN WILLIAMS said that his personal experience was virtually confined to ante-natal examination. In 1941 an *x*-ray department was opened at Queen Charlotte's, with facilities for the examination of out-patients, but the provision of an *x*-ray unit for the labour ward had been delayed by the war. The radiologist might be said to have a special responsibility when there was disproportion in the mid-plane or at the outlet of the pelvis. It was, of course, in borderline cases that the clinician was most likely to seek radiological help, and it was precisely in these that radiology might still leave the matter in doubt. It was in such cases that he had hitherto been too pessimistic about the value of radiology, but his own judgment had improved since charting in two projections—a method which he illustrated by means of a film—had been done as a routine. He believed that this charting offered a fair and reasonable basis for forming conclusions on the relative proportions of foetal head and pelvis.

Dr. CLARK NICHOLSON said that it was an advantage to have got away from the consideration of the shape of the pelvis and to consider its size only. He had been concerned with pelvic measurements now for ten years and had a series of over 700, mostly normal, cases, but he thought it quite reasonable to argue from the normal to the abnormal. The average foetal head entering the average maternal pelvis occupied no more than 55% of the area, and, from his calculations, if the proportion of the foetal head to the maternal pelvis exceeded 75% (or more probably 80%) the case might be defined as disproportion. Disproportion therefore could not arise in the average pelvis. But the foetal head was not the only part which could cause disproportion; the over-weight foetus was also a problem, quite apart from the size of the head. With regard to the outlet, the average measurement, taking the area of lowest pelvic diameter, was 108 sq. cm. Here the proportion of 80% did not hold good. The outlet was a different matter altogether from the inlet. He thought the outlet to be capable of enlargement, certainly much more than the inlet. The brim was more or less fixed; it could alter its shape a little but not its size, whereas the outlet could undoubtedly be enlarged by tilting of the bones which formed it. It was time to consider why disproportion arose at all. It was largely a question of pelvic contraction, and the governing factor was nutritional defect. If malnutrition were dealt with thoroughly disproportion would disappear very largely within the next generation.

FUNCTIONS OF THE PYLORIC CANAL

At a meeting of the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland, with the president, Prof. J. F. DONEGAN, in the chair, Dr. J. W. MILLEN read a paper on the subdivisions of the stomach.

Dr. Millen said he wished to draw attention to the normal subdivisions of the human stomach, and, in particular, to the importance of the pyloric canal as a distinct region which differed in its anatomy, mobility, and function from the other divisions of the stomach. In the normal adult human stomach three primary parts could be recognized: (1) a region for reception and storage—this was the primary function of the stomach, and in this sense the stomach was present in all but the lowest invertebrates; (2) a terminal closure mechanism—the pyloric sphincter—which assisted in the maintenance of storage; (3) an active milling region—the pyloric canal—for the physical trituration and fine subdivision of food; this region was interposed between the first and second parts. The receptive storage region comprised the body and fundus of the stomach and a more or less well-defined part—the pyloric antrum—specialized for the active filling of the pyloric canal. *X*-ray photographs of the stomach of a young adult showed that in the early stages of canalization of the empty stomach by an opaque meal the food did not at once enter the pyloric canal. When a small amount of the meal was manually pressed into the pyloric canal the longitudinal folds of the mucous membrane could be seen in the canal, and the pyloric sphincter at its distal end was well defined. After about half a pint of the meal had been given further pictures showed that the pyloric canal had now become rounded and globular in shape, but was still distinctly recognizable as a separate region filled from the pyloric antrum by deep peristaltic waves which traversed it. In approximately one-third of the dissecting-room subjects examined no pyloric canal could be defined, the whole stomach consisting of a single cavity closed distally by the pyloric sphincter. In two-thirds of the subjects examined the normal subdivisions described above were to be found. The absence of a pyloric canal in the first group was thought to be due to its incorporation in the proximal part of the stomach, and this might represent a shift towards the single-chambered stomach of the adult carnivores. He concluded that the

pyloric canal had, therefore, two functions: first, as an active milling region; and, secondly, in the emptying of the stomach, either as an active or passive region co-ordinated with the body of the stomach. Congenital hypertrophic stenosis of the pylorus—a hypertrophy of the pyloric canal and not of the pyloric sphincter—might, therefore, be due to the pyloric canal functioning as a mill, but failing to act in harmony with the proximal part of the stomach in its function as a part of the emptying mechanism.

Correspondence

"Calorie Control" Diabetic Diet

SIR,—Dr. A. C. Crooke and Miss Ella Scott have described (Jan. 16, p. 64) a "new dietetic treatment" of diabetes which so radically contravenes accepted dietetic principles and, still worse, the known physiological facts of insulin action on blood sugar and carbohydrate food, that I hurry to criticize the system and the statements therein. In a way I am glad it has been published because several patients on the scheme have been referred to me and I found them as mystified as I was.

The essential new feature in the scheme is the assumption that carbohydrate, protein, and fat (C.P.F.) have the same effect on the diabetic metabolism and are replaceable and equivalent in the diet if they contain the *same number of calories*. The diet prescribed is to be weighed to the last 1/4 oz. of butter, and an accurate list is given of the weights of all foods, C.P. and fat, containing 50 calories: 1/4 oz. of butter and 3/4 oz. bread (each 50 calories) are interchangeable, and it appears that the carbohydrate of any meal, usually thought necessary to balance the action of the insulin dose, can be replaced by protein and fat without any concern. "Thus a patient can take a protein and fat breakfast of bacon one day and a carbohydrate breakfast of cereal the next." I know that my diabetic patients would develop serious hypoglycaemia if they replaced their breakfast carbohydrate by equicalorie protein and fat, and can hardly believe that Dr. Crooke can maintain the contrary. Does he really mean this or do I misunderstand him?

Dr. Crooke states that, although the new diet often requires more insulin, the glycosuria is less and insulin reactions are not increased, which latter fact surprises me if his patients apply C. ⇄ P.&F. substitution. But do these patients really follow and apply the principles of the diet? All the cases who have been referred or transferred to me had no scales, never weighed the diet, and did not understand or indulge in calorie exchange; they ate enough C. to buffer their large doses of insulin and followed, if anything, the sample diet in Table I. These may be exceptional cases, but as 1/4 oz. scales have hardly been available on the market since June, 1941, I do not see how the diet could be applied at home. Has Dr. Crooke provided the scales necessary for his scheme?

The article contains several statements and conclusions which it is impossible to appreciate as insufficient facts are given, and so I ask a few questions: (1) Results are given on a group of patients on the new and old diet, but the level of the new diet is insufficiently mentioned and the old not at all. What were they? (2) He states: "It has long been our custom to give patients who are not excessively obese a diet which corresponds as nearly as possible to that which each individual might be expected to take if he had not got diabetes." Does this apply to the old and/or the calorie diet? If so, this sounds like a free diet (eat what you please), so why bother about a diet system and a weighed intake? (3) His insulin cases are classed as severe if on more than 60 units a day, as mild if on less. Surely this indicates the use of very large doses, as most people would call a case on 50 to 59 units a severe one, and the vast majority of my patients have under 60 units a day.

I have written many letters in your correspondence columns, but never before in such a critical and challenging spirit. But I feel that the fundamental principle propounded of unconcerned replacement of carbohydrate by equicalorie protein and fat is untrue and dangerous for insulin cases.—I am, etc.,

London, W.1. R. D. LAWRENCE.

SIR,—Dr. Lawrence is mystified by the simple diabetic diet which was described in your issue of Jan. 16 (p. 64). He asserts that the essential new feature of the scheme is the assumption that carbohydrate, protein, and fat have the same effect on the diabetic metabolism. This assumption was never made by me or any other thinking person. There can be no misunderstanding, however, that the diet is designed so that carbohydrate foods may be exchanged for protein or fat foods of the same calorie value within the limits of experiments described in our paper. These experiments were designed so that the daily variation in the proportion of carbohydrate to protein and fat exceeded anything that any ordinary patient might be expected to indulge in. He says that if his patients replaced their breakfast carbohydrate with protein and fat they would develop serious hypoglycaemia, but when our patients replaced their breakfast cereal with bacon or eggs no hypoglycaemic symptoms occurred.

Dr. Lawrence is worried because the new diet contravenes the accepted dietetic principles, but he ignores the fact that it has worked most satisfactorily in a series of 528 diabetic patients during the past eighteen months. The only exceptions have been a few patients with long-standing diabetes mellitus who refused to continue with it because it was against their own principles. Several of these have devoured all the bacon, eggs, and even butter that has come in for a household of 4 or 6 people, and they have been enraged when they have been told that this is unnecessary. Fortunately, these greedy people are very exceptional, but they so resent being given our new diet that perhaps Dr. Lawrence has met some of them.

Dr. Lawrence is also worried because the new diet contravenes the known physiological facts of insulin action on blood sugar and carbohydrate food, but he cannot have read the paper by Prof. Ellis referred to in our article. Prof. Ellis showed that when a patient's diet was changed from the ordinary type, in which the daily intake of carbohydrate, protein, and fat was kept constant, to a diet of 600 g. of glucose only for periods up to three weeks the patient's insulin requirement became progressively less. It is upon this physiological observation that the principle of the calorie control diet rests. Dr. Lawrence states that I said that patients on the new diet often require more insulin. His statement is misleading. Actually, patients' insulin requirements were found to have increased only when the value of their new diets exceeded that of their old ones by more than 50 calories. When the values of the new diets were the same as those of the old ones the patients were found to require less insulin than they would have done if their diets had never been changed. This is because they were able to take a relatively higher proportion of carbohydrate, and it is in keeping with Prof. Ellis's observations.

Dr. Lawrence asks for details of patients' diets. A typical example of an old diet for a working man would be carbohydrate 230 g., protein 90 g., and fat 80 g. This would usually be replaced by a new diet of 2,000 calories. These diets were tabulated for the 192 cases which were analysed, but the table was much too big to include in our article. Nor was it necessary to include it because we were concerned with the statistical results of treatment in three groups of cases. In the first group the new diet was more than 50 calories in excess of the old one; in the second it was within 50 calories of the old one; and in the third it was less than the old one by more than 50 calories. Dr. Lawrence then asks if it is not really a "free diet" when we give patients a diet which corresponds as nearly as possible to that diet which each individual might be expected to take if he had not got diabetes. This is obviously not so, for the whole object of the diet is to keep the calorie value of each meal constant from day to day. Finally, he objects to the classification of diabetes as severe when patients require 60 or more units of insulin a day and mild when they require less than 60 units a day. This classification is arbitrary, and was designed to see if there was any statistical difference in response of the different groups to treatment. It happened that all groups did equally well on the new diet.

We do not provide our patients with food-weighing scales. They are very difficult to get, but many patients have their own. We urge all those who have none to try to buy them

in the local shops or to borrow them from friends. It would be interesting to know if Dr. Lawrence provides his patients with scales with which to weigh his own diets.—I am, etc.,

London Hospital. A. C. CROOKE.

Dietetics of Pregnancy

SIR,—Will you allow me to make as briefly as possible some criticisms of your leading article entitled "Dietetics of Pregnancy" (Jan. 2, p. 16).

1. Your leader writer purports to quote the conclusions of Nixon *et al.* What they have shown is as follows: (*a*) In a group of toxaemic patients the mean rate of excretion of aneurin was significantly less than in a group of non-toxaemic patients. (*b*) In a group of toxaemic patients the mean aneurin concentration in the placenta was significantly less than the mean concentration in the placentas of a group of non-toxaemic patients. (*c*) They also showed, though they did not comment on this finding, that the mean weight of the placentas of this toxaemic group was roughly half that in the non-toxaemic group.

Since no attempt was made to discover how far the lesser rate of aneurin excretion in the toxaemic group was associated with deficiencies in renal function (which might reasonably be expected to be more frequent in this group than in the non-toxaemic group), the assumption tacitly made by Nixon *et al.*—that the lower mean rate of aneurin excretion in this group implies a difference in nutritional state—is certainly not proven. They use the data for aneurin content of the placenta to support the notion of aneurin deficiency in toxaemic patients, but they fail to draw attention to the fact that in a group of patients in which the mean placental weight is *half* normal the placentas are certainly not normal in constitution, and differences in concentration of a variety of chemical constituents are to be expected in such patently abnormal tissues, quite apart from any changes of nutritional state.

It will be seen that, although Nixon *et al.* have established relations of interest, their conclusions are not the only or even the most probable ones that can be drawn from their data. In any event, the extent to which they imply that aneurin deficiency may occur in toxaemia is that they say: ". . . It is suggested that vitamin B_1 might be beneficial to such patients." This appears in your leading article as: "Nixon, Wright, and Fieller, who find a highly probable correlation between suboptimal intakes of aneurin and the incidence of oedema and pregnancy toxaemia."

2. The qualifications of your leader writer for the critical appraisal of quantitative data are demonstrated clearly in the following passage dealing with the work of Williams and Fralin:

> "Their subjects, according to their own statement, failed to demonstrate 'any positive relationship between dietary adequacy and the occurrence of certain complications of pregnancy and childbirth'; *yet this is not altogether consistent with their observation that '84% of a group who presented a history of nausea and vomiting in early pregnancy had an intake below the pregnancy standard of 600 units of vitamin B_1.'* It must be noted, moreover, that of their 514 cases only 10 were receiving diets that 'could be termed good,' so that positive controls were largely lacking in this investigation."

The italics are mine. The figure of 84% may have a meaning when it is compared with the corresponding figure for patients not showing nausea and vomiting; but in view of the fact that 504 out of 514 patients in the series (i.e., 98%) are on diets that were not good, it seems probable that at least as great a proportion of those not suffering from nausea and vomiting might have been on a diet containing less than 600 I.U. of aneurin daily. There is, of course, the point that nausea and vomiting might more properly be called diagnostic features of early pregnancy, but this point is secondary to the present discussion.

3. Your leader writer experiences the same difficulties in dealing with figures in his treatment of the work of Tisdall and his colleagues. Numerous points of importance in the evaluation of this work seem to have escaped him. Some of them are discussed below.

(*a*) In the paper in the *Journal of Nutrition* the authors, in referring to the supplemented-diet group, say that they were "on an especially poor diet until the *fourth or fifth month* of pregnancy and then received extra food from us." In the paper in the *Canadian Medical Association Journal* they say (p. 2, col. 2): "90 women who were on poor diets until the *fifth or sixth month* of pregnancy and were then given extra food until 6 weeks after delivery . . ."; but in the summary of this paper they say (p. 5, col. 2): "Milk, eggs, tomatoes, oranges, and cheese were supplied to 90 of the women from the *fourth or fifth month* of the pregnancy until four weeks after discharge from hospital." The discrepancy between the second of these statements and the others is of some importance. The authors report a high frequency of "miscarriages" in the poor-diet group compared with that in the supplemented group. "Miscarriage" in this country denotes expulsion of the foetus before the 28th week of pregnancy. It occurs far more frequently before than after the end of the 4th month.

If miscarriage means to Tisdall *et al.* what it means in this country, the frequency of miscarriages in the period of the experiment is surprisingly high, even in the supplemented group, whether we take it that the supplementing began at the beginning of the fourth month for the majority of patients or at the end of the sixth month.

These weaknesses of definition are such that it is clear that the data are not fit to indicate relationships of importance in this field, let alone to support any edifice of policy.

(*b*) Tisdall *et al.*, in the regrettable clinical fashion, present their results as percentages. Any of your readers who has had the curiosity to convert the percentages referred to in your leading article into numbers of cases will have come across a puzzling and unsettling phenomenon. The figures reproduced by your leader writer for the numbers of patients in the groups (120 poor diet, 90 supplemented, and 170 good diet) are correctly reproduced, as are the reprinted percentage frequencies of threatened miscarriage, actual miscarriage, premature birth, stillbirth, and toxaemia. But when an attempt is made to derive the actual number of cases falling into each category, we have:

	Poor	Supplemented	Good
Threatened miscarriage	10	1	4
Actual miscarriage	7.2*	0	2
Premature birth	9.6*	2	5
Stillbirth	4	0	1
Toxaemia	9.1*	3	5

In the instances marked with an asterisk the percentages given by Tisdall *et al.* are given to two significant figures (6.0, 8.0, and 7.6 respectively), whereas, if there were 7, 9, and 9 cases in these categories, the percentages should have been 5.8, 7.5, and 7.5 respectively. It is curious that these differences should have occurred only in the poor-diet group: they certainly suggest that the data as presented are not to be relied on.

Three other features of this table are of importance. First, instances of different *complications* and not of *patients* are entered in it. There is no telling what proportions of the patients in the different groups suffered from complications of pregnancy. The experiment was one in which women and not complications were fed. Secondly, the good-diet group is not to be compared with the others as instancing the effects of diet, since it comprised patients whose social and economic status were generally better than patients in the poor and supplemented groups. Thirdly, it appears from consideration of the data in this table that the whole evidence on which Tisdall *et al.* can rely as showing an effect of diet on the complications of pregnancy is that in the first two columns of the table. It has already been indicated that their definition of miscarriage would appear from the evidence to differ from the English one. If it does not, then any effect of the supplementing of diet on the frequency of miscarriages must have been more magical than nutritional. As for the remaining complications—premature birth, stillbirth, and toxaemia—it would seem that an elementary knowledge of the subject would indicate that more than one of these was likely to coexist in the same patient. There is no way of telling from the data presented by Tisdall *et al.* whether or not in the poor-diet group these figures refer to as few as 9 patients who exhibited two or more of these complications or as many as 23 who exhibited one each. Similarly, in the supplemented group there may have been as few as 3 or as many as 5 patients exhibiting complications. This, then, is the evidence, so far as it can be dignified by the name, for the effect of diet on the complications of pregnancy which is presented in this "highly significant" survey. This consideration of the figures of Tisdall *et al.* is not an exhaustive one. There are sundry other inconsistencies in their work which effectively undermine any confidence one might have initially been inclined to feel in their data.

The work of the People's League of Health has been dealt with ably and forcibly by Doyne Bell in a discussion at the R.S.M., and has been reported in your columns; I would refer your readers to the full report in the current issue of the *Proceedings of the Royal Society of Medicine*.

The most disturbing feature of the current treatment of this subject of dietetics in pregnancy is the irresponsibility displayed by a section of the medical profession in a matter affecting a vital aspect of public policy. To begin and to perpetuate a clamour for better feeding in order to diminish the hazards of pregnancy is a laudable object if there is evidence that it is a real object. But to do so

irresponsibly on " evidence " of the sort so far presented, at a time when the satisfactory feeding of the people as a whole calls for all the skill of a skilful organizer, is tantamount to an act of sabotage of the first magnitude. It is for this reason that I have felt it was imperative to combat the impression conveyed by your leading article of the state of knowledge of the effects of diet on the incidence of the hazards of pregnancy.—I am, etc.,

Department of Biochemistry, Oxford. R. B. FISHER.

REFERENCES

Doyne Bell (1942). *Proc. roy. Soc. Med.*, **36**, 65.
Ebbs, Tisdall, and Scott (1941). *J. Nutrit.*, **22**, 575.
—— —— —— Moyle, and Bell (1942). *Canad. med. Ass. J.*, **46**, 1, 6.
Nixon, Wright, and Fieller (1942). *British Medica Journal*, **1**, 605.
People's League of Health. *British Medical Journal*, 1942, **2**, 77.
Williams and Fralin (1942). *Amer. J. Obstet. Gynec.*, **43**, 1.

Pituitary Extract for Congenital Pyloric Stenosis

SIR,—I should like to report a case of congenital pyloric stenosis cured by treatment with anterior-pituitary-like hormone. On Sept. 26, 1942, a woman of gipsy extraction gave birth to a healthy male child weighing 6 lb. 15 oz. Delivery was normal. At first the infant sucked well, but after three days he showed increasing incompetence at feeding and increasing tendency to vomit. The vomiting became projectile. At 10 days he vomited after every third feed, and on the 11th day he vomited a large projectile vomit after alternate feeds. His loss of weight was 1 lb. 12 oz. He was lethargic and looked ill.

On Oct. 8, 1942, Mr. John Levis of Bath saw the child. He and two other observers felt the tumour typical of congenital pyloric stenosis. He ordered the treatment he had studied, which had been used with striking success in Geneva before this war—namely, injections of 7½ rat units of pregnyl on Oct. 8, 15 r.u. on the 10th, 22½ r.u. on the 12th, 30 r.u. on the 14th, 16th, and so on. The child vomited once on the 9th, once (small amount only) on the 11th, and once on the 12th. On Oct. 10 he ceased to lose weight, and on the 11th he had gained 1/2 oz. Subsequently he continued to gain at an increasing rate. He began to have an appetite on about Oct. 18, and was discharged looking well and feeding well on Oct. 22. He had no further treatment. He was seen by the sister (who had taken such excellent care of him in hospital) in December, and was still well.—I am, etc.,

Trowbridge. E. CURPHEY.

A Case of Balantidiosis

SIR,—In view of the recent articles on intestinal infections in the *Journal*, I feel that a short account of one of my patients in a mental hospital will be of interest.

The patient, a man aged 71, was suffering from an infection which, from its rarity, is of more than common interest—namely, balantidiosis. He was a " ground parole " patient, and found that the occupation most congenial to him was the care of the piggery on the hospital farm. He had been working in this capacity for some little time, when, on June 29, 1942, he complained of loose motions. The stools were examined in the laboratory for dysentery bacilli (as dysentery had been fairly common), but *Balantidia coli* were found. Obviously he had received contamination while working among the pigs.

He was removed at once to an isolation ward, and 1% methylene blue enemata, in doses of one pint, were administered on alternate days, commencing on July 7. The faeces were examined daily in the laboratory and showed balantidia constantly present. On the suggestion of the deputy medical superintendent, Dr. J. E. Howie, a course of artificial pyrexia was given by intravenous injections of pyrifer on alternate days commencing on Sept. 19. The course consisted of eleven injections, the highest temperature reached being 104° F. As before, the faeces were examined during the therapy, and showed gradually decreasing numbers of balantidia until on Oct. 12 these were entirely absent. Loose motions again made their appearance on Dec. 5, and further investigation of the stools showed numerous protozoa once more.

Owing to the inability of obtaining fresh supplies of methylene blue under war conditions, at least for some time, an empirical course of sulphaguanidine was given in the recognized doses according to body weight, beginning on Dec. 11. The stools showed no organisms on Dec. 17, but these reappeared on Dec. 21. With the arrival of fresh supplies of methylene blue, and acting on the suggestion of Mr. Bean, in charge of the laboratory, a further course of enemata, in doses of one quart, was begun on Jan. 5, 1943. Unfortunately, the patient had relapsed mentally, and was unable to retain such a quantity in the bowel, which had been given in the hope of reaching the organisms in the more remote diverticula and crypts of the gut.

For a short time before this last course of treatment he had been showing increasing signs of cardiovascular degeneration (which had been present for some little time), and he succumbed to this condition before a full trial of the treatment could be completed. The last stools, obtained the day before his death on Jan. 8, showed no balantidia, and a specimen of the contents of the transverse colon taken at a post-mortem examination revealed mucus, pus, and blood cells but no organisms or cysts. As the post-mortem examination was performed more than twenty-four hours after death, the presence of the organisms was not to be expected.

To sum up, the efficiency of the last treatment is indefinite, and cannot be judged accurately owing to death occurring before treatment could be completed, although disruption of the protozoa was marked with methylene blue *in vitro*.—I am, etc.,

County Mental Hospital, Warrington, Lancs. P. A. M. ROBERTSON, Assistant Medical Officer.

Mitral Systolic Murmurs

SIR,—In his interesting paper on mitral systolic murmurs (Jan. 2, p. 8) Dr. William Evans does not mention the pulmonic second sound as useful in estimating the significance of a mitral systolic murmur. If there is no accentuation of the pulmonic second sound there is no mitral regurgitation; if there is accentuation, and especially if reduplication as well, the mitral murmur is important.—I am, etc.,

Hove. WALTER BROADBENT, M.D., F.R.C.P.

Skin Diseases in War

SIR,—I am prompted by my correspondence to make two brief comments on my article in the war medicine series (Dec. 26, p. 760).

In the first place I do not advise sulphanilamide or its derivatives in the treatment of the common varieties of impetigo, which respond quickly to mild antiseptics in lotions, creams, or pastes. Sulphanilamide has no demonstrable effect upon the brief course of the disease. In the exceptional case the indication for the use of sulphanilamide amounts to subclinical erysipelas, and this is clearly stated.

In the second place the Editor's note that the paper was based on a lecture recently given is misleading, because, in fact, the article was based on lectures given in 1941, was mostly written in that year, and submitted in January, 1942. This contretemps is only unfortunate as it affects the discussion of the treatment of scabies, and although the Editor kindly allowed me to insert a brief reference to the official emulsion of benzyl benzoate, it was not possible without rewriting the whole paragraph to give adequate prominence to the effective technique described in the memorandum on scabies and published by the Ministry of Health in June, 1942. Benzyl benzoate emulsion is undoubtedly the best and most elegant cure for scabies, but it is hoped that the discussion on the principles of treatment will be helpful when substitutes have to be used.—I am, etc.,

London, W.1. REGINALD T. BRAIN.

The Specialist in Medicine

SIR,—In the *Journal* of Dec. 26 (p. 764) the opinions of the Group of General Surgeons of the Johannesburg General Hospital on specialists are recorded. These views are uncomplimentary to specialists, who are said to be prone to a " somewhat confined outlook and lack of broad perspective," and it is suggested that in dealing with disease manifesting itself in a part of the body they do not pay due consideration to the whole organism.

I venture the opinion that these observations are based on the most slender justification, if any. In my experience specialists are very much alive to the relationship of one organ or part to the body as a whole, and are also familiar with the difficulty of persuading many of those who do not regard themselves as specialists that disease which is locally manifested has nevertheless always a general significance. " General " surgeons and, perhaps more especially, " general " physicians have by no means a monopoly of wide outlook and broad perspective, while they themselves are far from immune to the shortcomings attributed to more restricted specialists. The specialist who devotes himself to a particular organ or system does not regard disease disclosing itself in that organ

as a disease of that organ but as a local manifestation of some general disorder.

In his textbook on the eye, Von Beer, the teacher of MacKenzie, "the father of English ophthalmology," wrote as long ago as 1813: "Everything that acts upon the whole acts also upon the part, and everything that acts upon the part must also act upon the whole; therefore everything that acts upon the organism of an individual cannot remain without action upon the eye and vice versa" (Von Beer, *Die Lehre von den Augenkrankheiten*, Vienna, 1813. Von Beer was a specialist, and there is a tincture of holism in his words that should appeal to South African surgeons.

The tendency towards isolation and canalization is a product of the development of medical practice and is liable to affect all doctors in greater or less degree. It is not the fault of any class of practitioner, but is inherent in the system under which the practice of medicine is at present conducted.—I am, etc.,

Edinburgh. H. M. TRAQUAIR.

Electric Convulsion Therapy and Brain Damage

SIR,—In reply to Dr. F. T. Thorpe (Jan. 2, p. 23) I would suggest that if the application of *x* volts to a criminal in the electrocution chair can destroy the most stable centres of heart and respiration, it is a logical conclusion that any considerable fraction of *x* volts would still do damage to the more delicate and vulnerable neurons and centres. This would account for the impairment of intelligence which many have noticed after electrical treatment, and other symptoms. Since the application of electrical treatment has moved from schizophrenia to involutional melancholia, it has been said that impairment of intelligence does not matter in these old people.

The New York State Hospital have treated 1,000 schizophrenics with insulin, 1,000 with convulsions, and kept 1,000 controls without treatment. The insulin group did three times as well as the controls, and the untreated controls did better than the convulsion group. The ratio between the insulin recovery rate and that of the convulsion group was nearly 7 to 1. As electrical convulsion treatment leads to impairment of intelligence, so does removal of part of the frontal lobe convert a patient who might possibly recover into a mental deficient. Personally, I prefer to use the combination of histamine and insulin.—I am, etc.,

Salisbury. HORACE HILL.

Testing for Night Vision

SIR,—With reference to the articles by Major B. W. Rycroft (Nov. 14, p. 576) and Mr. N. Bishop Harman (Jan. 9, p. 43) I think it should be stated that the instrument used by Major Rycroft was designed for the Military Personnel Research Committee of the Medical Research Council by Dr. K. J. W. Craik. The intensities of illumination are accurately calibrated, and if the instrument is used meticulously according to the instructions drawn up by Brigadier Sir Stewart Duke-Elder and issued to those concerned the results are strictly comparable.—I am, etc.,

Leeds. J. HERBERT PARSONS.

Staffing Mass Miniature Radiography Units

SIR,—My own practical experience of this problem, so far as the medical staffing of each available portable unit is concerned, shows that Dr. Norman P. Henderson (Jan. 16, p. 81) would appear to raise difficulties which should never exist. The experienced chest physician working in close co-operation with a similarly experienced radiologist with specialized knowledge of chest disease is an indispensable and essential team for the staffing of each unit. The two are complementary and in no way antagonistic. Their independent opinions on each technically satisfactory miniature film are the only real safeguard for the individual subject in mass work of this nature. Such experienced workers will obviously refuse to express an opinion on any film whose quality is not satisfactory, and they will wisely safeguard against this by the inclusion in their team of a first-class technician.

Clark, Cordiner, and I, working as a team of technician, radiologist, and physician in 1940 and 1941, co-operated in an experimental study with direct radiographs as controls. Our results have already been recorded (*Brit. J. Radiol.*, 1941, **15**, 54). Subsequently I had the privilege of co-operating with two experienced radiologists, Drs. Courtenay Gage and Poullsen, again with direct radiograph controls. My findings were compared with the independent interpretation of these radiologists and the results of the analysis have already been recorded (*Proc. roy. Soc. Med.*, 1941, **34**, 595). From these experiences I am convinced that an essential need for the staffing of each unit is: (1) the close co-operation of chest physician and chest radiologist interpreting films independently and scrutinizing results conjointly; and (2) a first-class technician with additional assistants properly trained and experienced. The numbers examined must of necessity depend upon the accommodation, assistants, and dressing space available.

The claim of Continental workers that these examinations can be carried out at a rate of 300 or more per hour would not appear from personal experience to be compatible with good quality films, which are surely of greater importance than speed.—I am, etc.,

PHILIP ELLMAN.

X-ray Department at Health Centre

SIR,—Dr. Brailsford's letter (Jan. 16, p. 83) suggests an answer to many of the questions about which he is still in doubt.

1. I think it is not only advisable but essential to equip every health centre with apparatus suitable for conducting all routine examinations for all patients, irrespective of their size and build.

2. I do expect every centre to have the services of an expert radiologist.

3. I do not deprecate the transfer of patients from one centre to another for further investigation, but rather hope that when transferred they will go with radiological evidence that will be comparable with that obtainable in the parent hospital.

4. Miniature mass radiography will be unlikely to miss the early active case of phthisis, and there is certainly no slur to be cast on the medical examination which missed it without radiological aid.

5. Miniature mass radiography will discover the tuberculous lesion arising in a patient within three to six months of an initial negative radiograph at the second routine miniature examination, should the patient's symptoms not have developed sufficiently to cause him to have consulted his doctor in the intervening period.

6. Radiology is a clinical method which should always be used in conjunction with other clinical methods.

7. To say that a chest lesion is of no significance until it is associated with clinical signs sounds untrue, and the signs, if present, may be insufficient to have caused the patient to seek medical aid.—I am, etc.,

London, S.W.3. J. V. SPARKS.

Search for Health

SIR,—In view of the lack of response from competent authorities I should like diffidently to correct a misapprehension on the part of Prof. J. A. Ryle in his most instructive article on the science of health (Dec. 26, p. 746), in which he deplores the lack of an "observational science devoted to the fireside or field-side or laboratory study of health." In fact, such a scientific study of health was inaugurated as long ago as 1926 in the Pioneer Health Centre, Peckham, which, after nearly three years of encouraging trial, was successfully continued on a larger scale from 1935 until the beginning of the war. You gave a short summary of its working a week before the publication of Prof. Ryle's article (Dec. 19, p. 735).

The primary purpose of the Pioneer Health Centre was to seek the answer to Prof. Ryle's question, "What is health?" Prof. Ryle's own answer makes health synonymous with wholeness. But this definition later leads him into the trap of referring to "the preservation of health," a phrase implying its previous attainment, which is clearly impossible for mankind if it denotes complete wholeness, physical, mental, and spiritual. If health equals perfection it must always be beyond man's imperfect grasp. The Pioneer Health Centre, on the other hand, suggests that health is not a state but a process: "the smooth progressive process of synthesis . . . the expression of the adaptative function of the organism operating

progressively upon the extrinsic medium—the environment" (*Biologists in Search of Material*, 1938, p. 90; Faber). The attainment, rather than the process, of such a synthesis clearly equals Prof. Ryle's conception of wholeness; so that wholeness becomes the goal instead of the equivalent of health.

In order to test the validity of this dynamic conception of health the Pioneer Health Centre provided an environment "for the more intimate study and measurement and cultivation of health" in those families availing themselves of its facilities. A regular family overhaul and consultation provided the essential base-line for the estimation of the degree of health development brought about by use of the Centre's athletic and social amenities, as well as uncovering a wealth of previously undiagnosed ill-health. Therefore, in exploring the means "to teach health and the causes of health and the necessary provisions for health," Prof. Ryle will surely find a guiding hand in the idea and accomplishments of the Pioneer Health Centre.—I am, etc.,

Oxford. S. J. G. SPENCER.

Pasteurization of Milk

SIR,—May I through your pages offer Prof. L. P. Garrod (Jan. 16, p. 80) the information that streptococcal mastitis, in both acute and chronic forms, is one of the commonest infections of the cow, that human infection from this source is very rare, but that local lesions in the udder, caused by streptococci from human beings, may contaminate the milk. Sir William Savage, formerly M.O.H. for Somerset, has done good work in the investigation of streptococci in milk. Prof. P. S. Minett of the Royal Veterinary College says that this hypothesis of Sir William Savage's—that streptococci originating from human beings produce mastitis in the cow—has received a good deal of support from observation and experience, "so much support indeed, that it could not be doubted it was correct" (*Proc. roy. Soc. Med.*, Feb., 1937). Dr. F. Griffith of the Ministry of Health isolated scarlet fever (Type II) from milk in the Doncaster epidemic of 1936-7. During a period of six weeks six samples contained these streptococci (*Journal*, 1937, **1**, 519).—I am, etc.,

A. H. MACDONALD.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Dr. M. F. Perutz is giving a course of lectures with demonstrations on "Methods of *X*-ray Analysis and their Application to Biological Problems," on Fridays at 5 p.m., in the Molteno Institute of Biology and Parasitology.

The title of the degree of M.D. has been conferred by diploma on Mrs. C. M. Hall, of Newnham College.

NATIONAL UNIVERSITY OF IRELAND

UNIVERSITY COLLEGE, CORK

The following candidates have been approved at the examinations indicated:

M.D.—B. J. O'Driscoll.

M.B., B.Ch., B.A.O.—*D. F. Thomas, *K. V. J. Kearney, *W. P. F. Kearney, *P. J. Galvin, A. J. Beckett, E. Breen, J. Burke, T. Burke, M. F. Cahill, M. J. Collins, P. F. Corkery, M. J. Cosgrave, N. J. Dinan, R. J. Fitzgerald, Rose MacAuliffe, M. McCarthy, M. B. Millerick, D. Moroney, J. D. Morrissey, E. D. Murphy, C. O'Brien, Geraldine O'Callaghan, Maureen O'Driscoll, D. Ollivere, J. Osborne, H. P. J. O'Shea, R. F. O'Sullivan, Eileen M. Ring, J. R. Ryan, D. B. Sheehan, W. J. Shinkwin, M. J. Twomey, Mary T. Woods. *Part I:* Mary P. Moroney, J. O'Mahony. *Part II:* J. I. Buckner, L. J. Collins, T. A. Collins, Muriel C. Hurley, Maire MacCurtain, D. Murphy, B. O'Brien, J. J. Sheehan, J. J. Twomey, Winifred A. White. *Exempt in Mental Diseases:* T. Barrett, J. J. Sheehan, Winifred A. White. *Exempt in Pathology:* T. Barrett, Muriel C. Hurley.

D.P.H.—Abina T. O'Connor.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—T. McCracken.

* With first-class honours.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a quarterly meeting of the Council, held on Jan. 14, with Sir Alfred Webb-Johnson, President, in the chair, Mr. J. Newman Morris, F.R.A.C.S., was introduced and conveyed to the Council a message of greetings from the Royal Australasian College of Surgeons, which was cordially reciprocated. A resolution of condolence was passed on the death of Mr. L. R. Braithwaite, Vice-President, and the death of Dr. G. W. Crile, Hon. F.R.C.S., was reported. Mr. H. S. Souttar was elected Vice-President for the remainder of the collegiate year. Brigadier W. H. Ogilvie and Mr. L. E. C. Norbury were appointed representatives of the College on the Council of the Imperial Cancer Research Fund. It was decided that the first notice of the Council election should be published in the medical journals, as in 1942, and not sent by circular to Fellows resident in the United Kingdom, and that the second notice enclosing the ballot papers should be circulated as usual. All changes of address should be notified to the secretary. Communications in regard to the institution of the research chair in ophthalmology were received from the Council of British Ophthalmologists and from the joint committee of the ophthalmic hospitals in London.

A Diploma of Membership was granted to R. H. Maudsley.

Diplomas in Psychological Medicine were granted, jointly with the Royal College of Physicians of London, to the following successful candidates:

F. S. Adams, A.-el-A. M. Askar, C. Bard, Jean Durrant, Ada Glynn, E. C. O. Jewesbury, F. Post, Constance D. Roberts, P. H. Tooley, J. W. Wigg.

Diplomas in Laryngology and Otology were granted, jointly with the Royal College of Physicians of London, to the following successful candidates:

E. Benjacar, W. D. Doey, J. B. M. Green, B. L. Harbison, H. Mower, D. D. Steele-Perkins, W. M. L. Turner.

SOCIETY OF APOTHECARIES OF LONDON

At a recent meeting of the Court of Assistants, Sir Stanley Woodwark, Master, presiding, a letter of thanks was received from the University of London upon the completion of the Society's donation of £500 towards the cost of building the Ceremonial Hall of the University. A legacy of £50 to the Widows' Fund from the estate of Mrs. Freeman, widow of Past-Master Col. E. C. Freeman, was reported. A report on the recent session of the General Medical Council was made by Dr. J. P. Hedley, the Society's representative. The practical sections of the revived pre-medical examination were held at St. Mary's Hospital on January 7. Brigadier H. C. Edwards, Examiner, and A. G. S. Bailey, Licentiate, were Admitted to the Freedom of the Society by Redemption. Ralph Jordan Dodds was Bound Apprentice to Prof. E. C. Dodds for seven years.

The following candidates have satisfied the examiners in the subjects indicated:

SURGERY.—K. M. Donahue, J. H. Dransfield, M. A. Hamdy, E. E. Leiber, M. V. Matthew, R. Webb, C. E. C. Wells, R. A. Bush, D. B. Lawrence, J. M. Macdonald, J. M. Thomas, L. N. Yhap.

MEDICINE.—H. Gottschalk, H. V. T. Payne, J. H. Dransfield, J. A. Dryden, C. E. P. Grocott, E. R. Jones, W. C. Salter, C. E. C. Wells, L. N. Yhap.

MIDWIFERY.—F. G. Brindley, D. Headley, A. F. Rogers, J. H. Scarlett, J. M. Hanson, J. J. Maskell, C. E. C. Wells, L. N. Yhap.

The diploma of the Society was granted to J. A. Dryden, C. E. P. Grocott, E. R. Jones, E. E. Lieber, M. V. Matthew, W. C. Salter, C. E. C. Wells, R. A. Bush, L. N. Yhap.

Obituary

T. W. E. ROSS, M.D., F.R.C.S.ED.

We regret to record the death in Edinburgh on Jan. 14 of Dr. T. W. E. Ross at the age of 63. Educated at George Watson's College and Edinburgh University, Thomas William Edmondston Ross graduated M.B., Ch.B. with honours in 1902. After holding appointments as house-physician and house-surgeon at the Royal Infirmary of Edinburgh and the Maternity Hospital, he went to Vienna for further study. On returning to Edinburgh he took his M.D. and the Fellowship of the Royal College of Surgeons. For the next five years he was in practice in Cardiff, and at the end of that time he spent a year in Edinburgh studying diseases of the ear, nose, and throat under the late Drs. Logan Turner and J. S. Fraser. He began his general practice in Edinburgh in Morningside district in partnership with Dr. R. M. Ronaldson, and when the latter retired he moved into the centre of the city. For many years he has been one of the busiest doctors in the city, having a large and widespread practice. He was also principal medical officer to the Scottish Insurance Corporation. In the last war he joined the R.A.M.C. with the rank of captain and was with the Edinburgh Hospital at Salonika for some time. He was responsible for the radiological work in that hospital, and at the end of the war was awarded a decoration of the Order of St. Sava by the Serbian Government. In this war he not only took his share in the examination of recruits but was in charge of a first-aid post.

Dr. Ross was a man of sterling qualities. Under a somewhat rugged exterior was hidden a kindly and strong personality. His rather abrupt manner might be prejudicial at a first meeting, but his patients soon got to know that this was only on the surface and beneath was a man who was thorough and earnest in his work and who inspired confidence and trust. There are many in Edinburgh who will long mourn him, not only as a physician but as a friend to be consulted in difficulty. He had always been a hard worker and everything he undertook he did thoroughly. He never spared himself, and died as he would have wished, busy with his work to the very last. His chief recreation was golf, but he was also interested in music and general reading. His wife, who was a daughter of the late Rev. George D. Low of Fountainbridge Free Church in Edinburgh, died some years ago. He is survived by two daughters and a son, who is now serving abroad as a captain in the R.A.M.C.

R. C. L.

Dr. JOHN MORGAN REES of Pontypridd, who died on Dec. 29, 1942, in his 79th year, was the senior practitioner in the district. Educated at Queen's College, Taunton, and King's College, London, Dr. Rees took the M.R.C.S. and L.S.A. in 1887. He began practice as assistant to the late Dr. Webster at Merthyr Tydfil, and it was while he was there that he was awarded the diploma of the Royal Humane Society for rescuing a youth from drowning. Dr. Rees started practice on his own account at Pontypridd in 1897, and became one of the leading practitioners of the district. His interests were varied; proceedings of the Cardiff Naturalists' Society, archaeology, Welsh folk-lore and literature occupied his leisure. His chief interest, however, was in the practice of his profession and in the welfare of its members. He was a faithful member of the B.M.A. for 54 years, the offices he held including that of chairman of the North Glamorgan and Brecknock Division in 1916-17 and president of the South Wales and Monmouthshire Branch in 1927-8. He was a representative at five Annual Representative Meetings, a member of the Welsh Committee for many years, and in 1927-8 was a member of the Central Arrangements Committee in connexion with the Annual Meeting at Cardiff. He was also on the Glamorgan Panel Committee from its inception, and at the time of his death was the treasurer; he was one of its representatives at the Panel Conference. No meeting of medical men in the county of Glamorgan was complete without Dr. Rees, and it can be said that he was one of those who succeeded in promoting professional amity in this part of South Wales. His death removes one of the old type of medical men—a cultured gentleman, dignified, and always courteous. He married Miss Gladys Enid Jones, who, with one daughter, predeceased him. He is survived by another daughter and two sons, both medical men: Dr. Llewelyn Rees of Cardiff and Dr. Edward J. Rees of Pontypridd, vice-president of the local B.M.A. Division.

Correction

The late Dr. F. J Allen was a scholar of St. John's College, Cambridge, not a Fellow as stated in the obituary notice in the *Journal* of Jan. 16 (p. 86).

The Services

The A.F.C. has been awarded to Flight Lieut. B. J. O. Winfield, R.A.F.V.R.

The following medical officers have been mentioned in dispatches: Air Commodore T. J. Kelly, M.C.; Group Capt. R. W. White; Wing Cmdrs. G. P. O'Connell, Ll. C. Palmer-Jones, H. Penman, A. A. Townsend, H. H. S. Brown, and E. W. R. Fairley, R.A.F.; Wing Cmdr. D. H. Brinton; Squadron Leaders R. G. E. Richmond, A. Wilson, E. O. Evans, J. H. P. Gauvain, G. R. Gunn, J. R. O'Dowd, C. G. Rob, T. E. Whitby, J. R. Caldwell, and T. M. Prossor; Flight Lieuts. P. J. Blaxland, P. M. Davies, H. F. M. Finzel, A. J. Nimmo, W. L. Price, A. A. Smith, C. E. Waterman, and Flying Officer O. T. Brown, R.A.F.V.R.; Squadron Leader J. B. Murphy, R.A.F.O.; and Squadron Leader H. J. Riley and Flight Lieut. J. E. La Frenais, A.A.F.

Temp. Surg. Lieut. R. D. Wilkins, R.N.V.R., has been mentioned in dispatches.

Prisoners of War.—Lieut.-Col. C. Armstrong, M.B.E., R.A.M.C., Capt. A. D. Aveling, R.A.M.C., Capt. A. E. Brewer, R.A.M.C., Major H. M. Marks, R.A.M.C., Lieut.-Col. C. V. D. Rose, I.M.S.

Medical Notes in Parliament

Private Practice of Alien Doctor

On Jan. 19 Sir ERNEST GRAHAM-LITTLE asked the Home Secretary under what regulation or other legal provision he was withholding from an alien medical practitioner possessing a registered British medical qualification permission to engage in private practice in a certain town, on the ground that this practitioner acted for some months as an assistant to a doctor there without entering on any agreement restricting him from subsequent independent practice; and whether he was making it a condition that duly qualified foreign doctors who wished to practise in this country must join the B.M.A. voluntary scheme for local protection of practices. Mr. H. MORRISON said that, as he informed Sir Ernest Graham-Little in October, he did not feel justified in agreeing that the Austrian doctor to whom he referred should be allowed to establish himself in private practice close to a practice in which he had recently been employed as an assistant, but he had now approved of the doctor setting up in practice in a town some distance away. The answer to the second part of the question was in the negative, and he was taking steps to correct a misapprehension on this point to which Sir Ernest had drawn his attention.

Mines Medical Service

On Jan. 19 Mr. J. GRIFFITHS asked the Minister of Fuel and Power what progress had been made with the establishment of a medical service in the regions. Major LLOYD GEORGE said that a selected number of candidates from the long list of applicants for regional posts in the Mines Medical Service were being interviewed this week, and appointments would be made as soon as possible. Meanwhile, the Miners' Welfare Commission, in consultation with the Ministry of Health and the district welfare committees, had been actively engaged in the search for suitable buildings for miners' rehabilitation centres. A centre in Scotland, to accommodate 200 miners, was opened on Jan. 11, and the rehabilitation centre at Berry Hill had been taken over by the Miners' Welfare Commission from the Mutual Indemnity Company. Negotiations were in progress for the acquisition of buildings elsewhere, and good progress was being made generally in the other work involved in setting up centres to cover all the chief coalfields.

Mr. RHYS DAVIES observed that the Minister could be congratulated on finding so many doctors for this purpose, when the Minister of Pensions declared that he was unable to find doctors for his pensions tribunals. Sir FRANCIS FREMANTLE: Will the Minister consider consulting the Central Medical War Committee as to the disposal of man-power in the Forces in making these appointments, so as not to choose people who ought to be called up for the Forces? Major LLOYD GEORGE replied that the Ministry was in constant touch with all these authorities. Dr. HADEN GUEST asked how many doctors were being appointed. Major LLOYD GEORGE said he believed 8 would be appointed in the regions and 1 at headquarters—9 altogether.

Jamaica Medical Service

On Jan. 19 Mr. D. ADAMS asked the Secretary of State for the Colonies whether he was aware of the discontent and numerous resignations of doctors from the public hospitals and services of Jamaica, petitions of nurses against mismanagement resulting in overwork and under-payment, and the alleged neglect of patients and inability of hospitals to give proper attention to serious cases; and if he would accede to the public demand for an impartial and comprehensive inquiry with a view to remedying the grievances and inefficiency in these services. Colonel STANLEY said he was aware that some dissatisfaction existed in the Jamaica Government Medical Service. He understood that the pay and conditions in that service had been investigated by the local public services committee, and he was awaiting its report with the Governor's recommendations.

Recruitment to Colonial Medical Service

Wing-Commander HULBERT on Jan. 19 asked the Secretary of State for the Colonies what steps were being taken to ensure that an adequate number of doctors were recruited for the Colonial Medical Service during the war. Colonel STANLEY replied that under arrangements made with the Central Medical War Committee, which was the official agency for the supply of doctors, a sufficient number of suitable candidates had hitherto been forthcoming to fill declared vacancies for medical officers in the Colonial Medical Service. A scheme for the building up of a reserve of medical officers was under active consideration.

Insured Persons and the Protection of Practices Scheme

On Jan. 19 Sir E. GRAHAM-LITTLE asked the Minister of Health if he would investigate the case, of which he had been told, in which the County of London Insurance Committee had informed insured persons that, in the absence of their own doctor and of any specified locumtenent, they could not obtain treatment from a National Health Insurance practitioner who was not a member of the Protection of Practices Scheme conducted by the B.M.A., and if he was aware that some insured persons had had to wait some months before getting treatment from the practitioner of their choice and had in the meantime had to pay private fees for medical attention near their homes. Mr. ERNEST BROWN replied: I am informed that insured persons on the lists of absentee practitioners who are participants in the London Protection of Practices Scheme are not directed to go to any particular doctor, but are informed that they can apply to other participating doctors the nearer of whom are named. Doctors who participate in the scheme and are on Service have agreed to accept other participating doctors as their deputies during absence, and the regulations provide that an insured person on the list of a practitioner who has appointed a deputy can transfer to another practitioner only at the end of a quarter and after a prescribed length of notice, except where the former practitioner agrees to an earlier transfer.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the principal features of the returns of infectious diseases during the week reviewed were the rises in the number of cases of whooping-cough 115, acute pneumonia 155, and dysentery 24, and the falls in the notifications of measles 836, scarlet fever 351, and diphtheria 98. The seasonal rise in mortality from influenza began, and the 65 deaths recorded in the great towns, an increase of 21, constitute the largest total since last March.

A small fall in the incidence of diphtheria and scarlet fever was recorded in most areas of the country, notably in Staffordshire and Yorks West Riding with a drop of 98 and 63 respectively. No marked changes occurred in the local distribution of diphtheria.

The fluctuations in the trend of acute pneumonia were small in most counties, the only differences of note being rises in Warwickshire 43, Yorks West Riding 46, and Durham 31.

The largest rises in the notifications of whooping-cough were Wales 52, Lancashire 50, Cheshire 21, and Durham 20. Whooping-cough is more prevalent in the North than in the South. The cases reported from the combined areas of London, South-Eastern, South-Western, South Midland, and Eastern Counties formed only one-quarter of the total of the country.

There were relatively large variations in the incidence of measles in many counties. The largest drops were in Leicestershire 333, Yorks West Riding 188, Southampton 147, Essex 115, Nottinghamshire 105, and Lancashire 104; and the largest rises were in Derbyshire 187, Sussex 82, Durham 71, Berkshire 65, and Bedfordshire 36.

Three counties were responsible for the higher incidence of dysentery. An outbreak in Essex accounted for 22 cases (Colchester M.B. 16); the notifications in London rose from 14 to 23, involving eleven boroughs, and in Lancashire from 17 to 33 (Blackburn R.D. 25).

In *Scotland* there was a sharp rise in the incidence of infectious diseases, particularly for measles 307, scarlet fever 53, whooping-cough 54, acute primary pneumonia 37, and for diphtheria 19. Notifications of measles rose especially in the burghs of Dundee 107, Aberdeen 93, Greenock 46, and Kirkcaldy 34. Of the 32 cases of dysentery notified, 10 came from the county of Zetland and 11 from the city of Aberdeen. The trend of whooping-cough was mainly affected by the experience of Glasgow, where the notifications went up by 37, while the increase in the number of cases of scarlet fever and diphtheria was fairly general. An outbreak of gastro-enteritis due to food, involving over 100 persons with 2 deaths, occurred in St. Andrews.

In *Eire* the numbers of cases of poliomyelitis have fluctuated round a constant level during the past month. During the week reviewed there were 10 cases from nine areas.

Returns for the Week Ending January 16

The notifications of infectious diseases in England and Wales included: scarlet fever 1,957, whooping-cough 1,504, diphtheria 764, measles 12,323, acute pneumonia 1,194, cerebrospinal fever 96, dysentery 96, paratyphoid 5, typhoid 4. In the great towns there were 89 deaths from influenza.

No. 1

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 9.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	87	3	18	7	3	143	6	37	1	1
Deaths		1	—				1	4		
Diphtheria	841	46	238	89	29	1,028	46	282	33	40
Deaths	36	1	2	5	1	35	1	5	3	1
Dysentery	119	23	32	—	—	98	4	25		1
Deaths				—	—			—	—	—
Encephalitis lethargica, acute	1	—	—	—	—	3	—	—		—
Deaths		—	—	—	—		—	—		
Erysipelas		—	63	12	4		—	64	8	2
Deaths		—					—	—		
Infective enteritis or diarrhoea under 2 years				13						
Deaths	49	5	7	11	6	37	5	13	8	4
Measles	14,153	698	525	11	17	934	76	98	120	3
Deaths	23	2	1	1	—	—	—	—	2	—
Ophthalmia neonatorum	77	2	25	—	—	101	7	21		1
Deaths										
Paratyphoid fever	5	—	3	—	4	6	—	1	—	
Deaths	—	—	—	—		—	—	—	—	
Pneumonia, influenzal*	1,091	67	14	14	—	1,041	65	14	—	16
Deaths (from influenza)	65	4	3	1	—	61	9	3	1	3
Pneumonia, primary	—	—	216	26	2			366	18	
Deaths		—		27	5		68		17	21
Polio-encephalitis, acute	1	—				3	1			
Deaths		—					—			
Poliomyelitis, acute	2	1	2	10	1	8	—	—	5	—
Deaths		—					—	—		
Puerperal fever	—	1	27	2	1	—	—	17	1	—
Deaths		—					—			
Puerperal pyrexia	125	9	20		—	166	—	17		7
Deaths										
Relapsing fever	—	—				—	—			—
Deaths										
Scarlet fever	1,808	134	346	42	52	962	33	239	31	25
Deaths	1	—	—	—		—	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever†	8	2	5	7	2	18	2	2	5	—
Deaths	—	—	—	—	—	1	1	—		—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,302	86	76	45	6	1,680	201	71	42	34
Deaths	11	—	7	1	—	12	—	—	1	
Deaths (0–1 year)	407	39	81	48	33	343	47	94	30	37
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	5,184	774	724	300	141	5,095	765	709	231	163
Annual death rate (per 1,000 persons living)			16·3	19·7	‡			16·0	15·3	‡
Live births	6,403	761	978	359	298	5,331	515	787	272	202
Annual rate per 1,000 persons living			20·0	23·6	‡			16·3	18·1	‡
Stillbirths	266	25	38			197	17	42		
Rate per 1,000 total births (including stillborn)			37					51		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

Dr. G. M. B. Dobson, F.R.S., will give a discourse on "The Air We Breathe in Town and Country" at the Royal Institution, 21, Albemarle Street, W., on Friday, Feb. 12, at 5 p.m.

The National Institute for the Blind report that 100 civilians in this country are now known to have lost their sight by enemy action. These are additional to blinded members of the fighting and civil defence services. News of the hundredth casualty reached the Institute only a week or two ago, a year after its occurrence. Owing to the delay the wounded person lost the advantage of early specialized training. Hospitals have been asked to report these casualties as soon as possible so that expert help can be given immediately. The patient can then be comforted through the period of shock and may even begin Braille. On discharge from hospital the men and women become guests at the Institute's homes of recovery. Very young victims are received as boarders at the Institute's Sunshine Homes.

Sir Edward Mellanby and Prof. W. W. C. Topley have been appointed to serve on the Colonial Products Research Council, the appointment of which, under the chairmanship of Lord Hankey, was announced on Jan. 18.

In response to inquiries about the new British Standard specification for haemoglobinometers, Haldane type (*Journal*, Jan. 2, p. 14), a circular has been prepared on the "Arrangements for Testing Haemoglobinometers (Haldane), Colour Tubes, Graduated Tubes, and 0.02 ml. One-mark Capillary Pipettes" by the National Physical Laboratory, Teddington, Middlesex, from whom a copy may be obtained on application.

In view of the shortage of doctors, medical officers of local authorities are not to be retired on reaching the age limit if they are fit and willing to continue in their work. The Minister of Health (Circular 2758) reminds local authorities of their powers under the Local Government Superannuation Act, 1937, to extend a doctor's services (with his consent) for one year or under and to repeat this extension if desired. They can also re-employ doctors already retired on terms to be mutually agreed, subject to the Minister's approval in appropriate cases.

According to Prof. Gunnar Nyström of Uppsala more than 500 Swedes die annually from appendicitis alone because they come under medical treatment too late. About 20,000 appendix operations are performed in Sweden every year, and 3,000 patients need a further twelve days' treatment because of delay in treatment.

In a statement published in the Danish press, Dr. Frandsen of the Medical Board is reported to have said that infectious diseases generally are on the increase there. For the period January to November, 1942, there were 56,291 cases of acute diarrhoea, as compared with 2,954 in the corresponding period of 1941. There was also an increase of cases of jaundice, of from 2,586 in 1941 to 9,040 in 1942.

A medical faculty has recently been established at Abo, Finland.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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QUERIES AND ANSWERS

Income Tax

Income Remaining Abroad

M. is now permanently resident in this country but has investments in Australia. Is M. liable to British income tax on dividends which are not remitted to this country?

*** Yes. There is, of course, the statutory measure of relief in respect of the tax paid in Australia.

Marriage—Effect on Allowances

"S. P." has a resident appointment at £200 a year and was married last November. How is her liability affected?

*** In the current financial year, 1942–3, "S. P." will be entitled to exemption up to the date of marriage, and for the period from her marriage to April 5, 1943, any liability will be covered by the £80 allowance to married women earning income, and the ordinary 1/10th earned income allowance. Her husband will be entitled to the married man's allowance of £140. In the next financial year, 1943–4, "S. P." will be liable, subject to deduction of the £80 and the 1/10th earned income allowance.

LETTERS, NOTES, ETC.

Scabies

Dr. HAROLD E. WATKINS (Newton-le-Willows, Lancs) writes: An ointment, called here "ung. pro scabies," was brought to my notice in 1921, and I used it until I retired from general practice in 1936. It is the prescription of a Danish doctor, and was prepared according to the Danish Marcussen formula. With one exception, one application only was sufficient to effect a complete cure; in this one case a second application did cure completely. I have never known the ointment to cause any signs of skin complications. Reference is made to this preparation in the *Lancet*, 1920, **2**, 1251; *Wien. klin. Wschr.*, 1921, **34**, 94; *Medical Annual*, 1922, p. 376; *British Medical Journal*, 1930, **1**, 1080; and the formula was adopted by the *B.P.C.* in 1934 under the title "Ung. potass. polysulphid." The instructions for its application are: "The patient receives an ordinary cleansing bath, wipes himself thoroughly, and then rubs the whole body, except the head, with the ointment. After a quarter of an hour in the upright position he goes to bed, and 24 hours later has a second cleansing bath and puts on fresh and disinfected clothing." All body and bed clothing must be disinfected, as the eggs hatch there and start the process all over again. The eggs get into the clothes by the scratching. The formula of the ointment is—as stated in the *B.P.C.*: Potassium hydroxide 1/2 oz., sulphur sub. 1/2 oz., paraffin. molle 394 grains, wool fat 394 grains, zinc sulphate 49 grains, sodium hydroxide 14 grains, distilled water 302 minims, benzaldehyde 10 minims, liquid paraffin to 4 oz. I am indebted to Messrs. James Woolley Sons and Co. Ltd. of Victoria Bridge, Manchester, 3, for the above formula. I have always obtained the ointment from this firm, and have no doubt that they will be able to supply any doctor on application.

Treatment of Migraine

Dr. NEVIL LEYTON (London) writes: I have read Mr. G. F. Rowbotham's article (Dec. 12, p. 685) on the pain pathways in migraine with interest. And his suggestion for treatment of headaches of this type where there is no organic lesion is likely to bring relief to many. Having myself recorded the successful treatment of migraine and neurasthenia both in the female *and* in the male by the use of A.P.L. hormone (*Lancet*, 1942, **1**, 488) I think that it would be well worth trying this drug in cases of migrainous headache in post-concussional cases. The treatment is so simple and the relief, if relief there is to be, so noticeable early in the treatment, that it might save surgical intervention in many patients.

Sacro-iliac Strain

Dr. K. WILSON JAMES (Jamaica) writes: The sacro-iliac joint is of the diarthrodial variety, possessing a small synovial cavity. The joint is almost immovable, but owing to the heavy musculature surrounding the pelvis and the constant stress to which that structure is subject, sacro-iliac strain, when it occurs, can be very resistant to treatment. Attendant upon the strain, pain sets up muscular spasm and, associated with it, a certain amount of vaso-constriction. This leads to a diminished blood supply to the injured structures and delay in healing. Thus a vicious circle is established with a tendency for the condition to become chronic and incapacitating. This vicious circle can often be broken, particularly in the early stages, by injection of 1/2% novocain into the surrounding painful ligaments. These ligaments—the posterior and oblique sacro-iliac and the upper fibres of the sacro-sciatic—are easily accessible for infiltration with a local anaesthetic. Occasionally in severe cases a longer-acting, oily anaesthetic (proctocaine) can be used, and injections can be repeated. Results are often dramatic. Following the injection the patient, who should wear an elastic girdle, which is slightly restrictive and also gives some support, should be allowed up from the start, except in very severe cases, and moderate exercise should be permitted. This procedure, although simple and not spectacular, and used either alone or as a supplement to the other recognized forms of treatment usually employed, has a definite place in the treatment of sacro-iliac strain.